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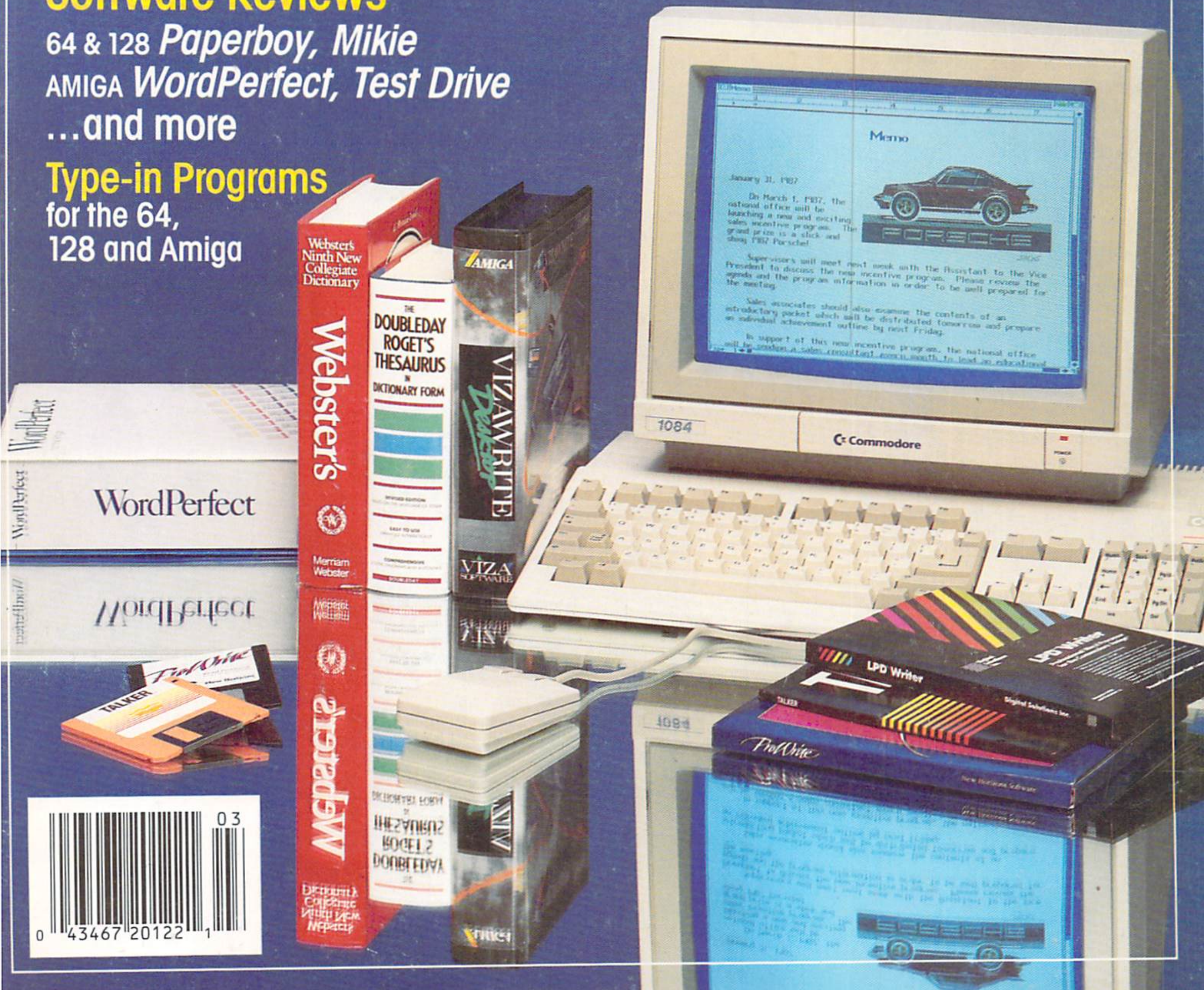
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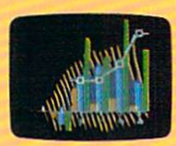
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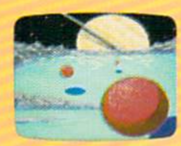
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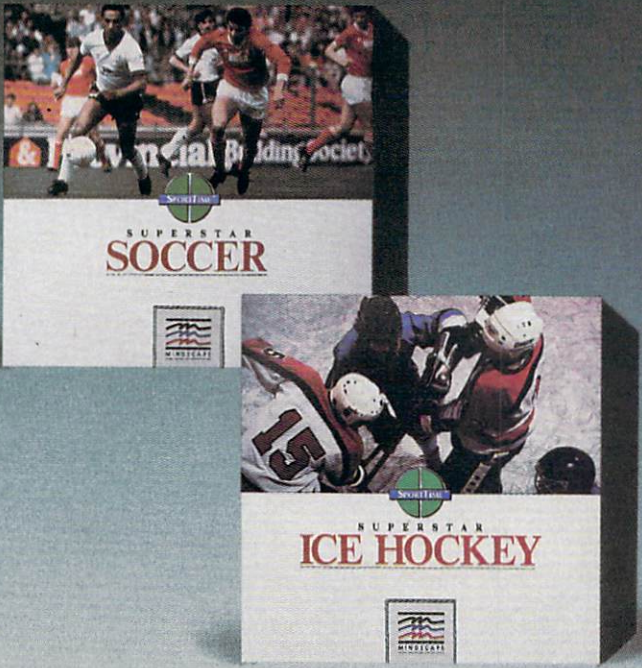
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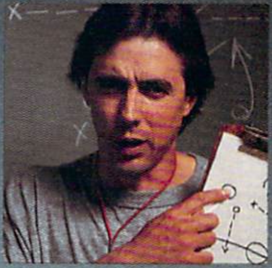


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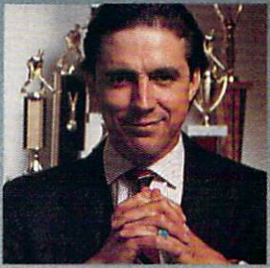





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# Commodore
MAGAZINE

MARCH 1988, *Volume 9, Number 3*



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## FEATURES



## COVER STORY



**COVER PHOTO:** *Gene Smith*
Software: *ProWrite by New Horizons Software*

## DEPARTMENTS

To the Editor:

Unfortunately, we *Commodore Magazine* subscribers here at the American Embassy in Lisbon, Portugal just received our November issue today, in late December. The "1581 Disk Drive" reviewed by Dan Baker caught my eye right away, particularly because I recently purchased one to use with my 128 and 1571.

I've no doubt that the writer was correct with regard to the 12 software packages he listed as working with both a 1541 or 1571 as device 8, and the 1581 as device 9, but he left out another excellent word processor Xetec's *Fontmaster 128*.

I have my system set up exactly as suggested and merely had to make a very minor change in one of *Fontmaster 128*'s two set-up files. As with the other programs listed, no special version is needed.

Additionally, as with *Paper Clip II* mentioned in the article, *Fontmaster 128* is also not copy protected (it also uses a dongle). To copy it to a 3.5-inch disk, you don't have to use the Uni-Copy program which comes with the 1581—*Fontmaster 128* comes with an excellent copy program right on the master disk.

I have had occasion to write Xetec regarding questions and/or suggestions regarding *Fontmaster* and have found them to be very receptive and always ready to offer whatever assistance I require. In these days of complaints regarding software publishers, I can say without hesitation that Xetec keeps the customer's satisfaction paramount, long after the sale.

I think they make a fine product and wanted to share some thoughts with you on *Fontmaster 128*.

*Sincerely,*
*Robert Arceneaux*
*American Embassy*
*Lisbon, Portugal*

***Editor's Response:*** *Look for a complete review of Fontmaster 128 in next month's Commodore Magazine.*

To the Editor:

Shay Addams' "Adventure Road" column in the January 1988 issue, states that in *Alternate Reality: The Dungeon* there were *six* guilds and that the player could store weapons and loot in a guild locker. Actually, there are *eight* guilds, and you cannot store *weapons* in a guild locker. Six of the guilds have corresponding locations in *The City*. Two guilds are new and exist only in *The Dungeon*. Only gold, silver, jewels, food, water, compasses, etc. can be stored in a guild locker. No weapons. Unless, of course, you count torches, which technically could be considered a weapon.

The reason I know this is because I recently won the "Awesome Alternate Reality Character" contest for *The Dungeon* sponsored by Datasoft. I won for having the most "evil" character and best stats, quests solved, etc.

I just thought I would drop you a line. I really enjoy *Commodore Magazine*. Keep up the great work!

*Sincerely,*
*Jeff Towich*
*Whitehall, PA*

To the Editor:

I am a serious programmer and the proud owner of a Commodore 128. I have owned a Commodore computer for over nine years starting with their innovative PET 2001. I have always preferred their programmer-oriented operating systems and architecture, and I really love programming my 128. I enjoy access to the large 64 software library. However, I feel a growing yearn to expand my collection of *dedicated* 128 and CP/M software (particularly a 128 assembler package or perhaps a Pascal or C compiler). Certainly my dealers' shelves are *not* overflowing with 128 or CP/M software. I just want to get the most out of my investment, but alas, I am frustrated by a lack of solid support. I went out to my favorite local book store and purchased Commodore's *Programmer's Reference Guide*, and I am *very* impressed with it. It is a truly helpful, informative, well-written document, and Commodore deserves praise for doing such a great job on it. But you know what the users say . . . "Keep it coming!" Any assistance you can provide me would be greatly appreciated.

*Sincerely,*
*Michael Lauderdale*
*Richmond, VA*

***Editor's Response:*** *While they may not be overflowing from your dealer's shelves, rest assured that there are hundreds of 128-specific titles available. Here are some suggestions for the titles you are looking for:* Power Assembler 128 *and* Power C 128 *from Spinnaker (617/494-1200), and* Super C 128 *and* Super Pascal 128 *from Abacus (616/698-0330). Unfortunately, very few CP/M specific titles are being released. One that we can suggest is* Format Executive *from PowerSoft (813/794-8818) which can format CP/M disks for over 100 different computers.*


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*Commodore Magazine*, Volume 9, Number 3, March 1988.

*Commodore Magazine* is published monthly by Commodore Magazine Inc., 1200 Wilson Drive, West Chester, PA 19380. U.S.A. U.S. subscriber rate is $35.40 per year; Canadian subscriber rate is $45.40 per year; Overseas subscriber rate is $65.00 per year. Questions concerning subscription should be directed to Commodore Magazine Subscription Department, Box 651, Holmes, Pennsylvania 19043. Phone (800) 345-8112. In Pennsylvania (800) 662-2444.

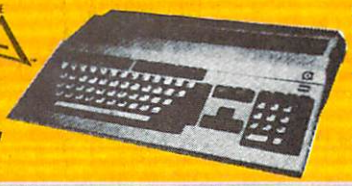

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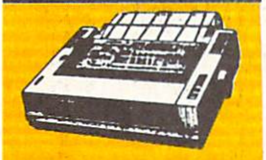
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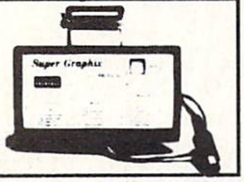
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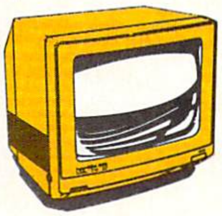
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## The Accountant

KFS Software's latest offering for the Amiga is **The Accountant,** which incorporates Accounts Receivable, Accounts Payable, a General Ledger and Payroll functions in a multitasking environment. Upgrades scheduled for 1988 release include compatible Inventory Control and a Cash Register & Inventory system. These will be made available to registered owners of **The Accountant**. For more information contact: KFS Software, Inc., P.O. Box 107, 1301 Seminole Blvd., Suite 117, Largo, FL 34649-0107.

## ProGEN

Progressive Peripherals & Software has released **ProGEN**, a broadcast-quality Genlock device for the Amiga that allows users to merge graphics with an outside video source. **ProGEN** is a stand-alone unit which retails for $399.95. For more information contact: Progressive Peripherals & Software, Inc., 464 Kalamath St., Denver, CO 80204. Or call: (303) 825-4144.

## City Desk Update

MicroSearch is shipping **City Desk** version 1.1 for the Amiga. The desktop publishing update accepts files created with *Scribble!* and *WordPerfect* and includes a separate clip art disk with 25 pictures. The upgrade is free of charge to **City Desk** 1.0 users. For details contact: MicroSearch, 9896 Southwest Freeway, Houston, TX 77074. Phone: (713) 988-2818.

## IntroCAD

Progressive Peripherals & Software's **IntroCAD** is an entry-level CAD program for the Amiga. Designed for ease of use, **IntroCAD** incorporates many standard CAD features such as: circles, boxes, arcs, adjustable text size, snap to grid, and pop-up rulers. Suggested retail price is $79.95. For further information contact: Progressive Peripherals & Software, Inc., 464 Kalamath St., Denver, CO 80204. Or call: (303) 825-4144.

## SupraDrive

Supra Corporation has released the **SupraDrive** hard disk system for the Amiga 500. The **SupraDrive** system includes: hard disk drive, SCSI expansion port and RAM expansion capability. The new drives are available in 20, 30, 60 and 250MB capacities, and retail for $995, $1195, $1995 and $3995, respectively. For more information contact: Supra Corporation, 1133 Commercial Way, Albany, OR 97321. Or call: (503) 967-9075.




## The Train and Power at Sea

Accolade has released two new WWII combat simulations for the Commodore 64. In **The Train: Escape to Normandy** the player assumes the role of a French resistance leader who must seize a train containing France's greatest art treasures and guide it through enemy lines to safety at Normandy.

**Power at Sea** is based on the Battle of Leyte Gulf. The player is captain of a fleet trying to infiltrate and secure the gulf, which is under enemy control. The mission must be accomplished in 96 hours.

**The Train** and **Power at Sea** retail for $29.95 each. For further information contact: Accolade, Inc., 20813 Stevens Creek Blvd., Cupertino, CA 95014. Phone: (408) 446-5757.

## PIXmate

Progressive Peripherals & Software has introduced **PIXmate,** an image enhancement package for the Amiga. **PIXmate** performs as many as 3000 special effects on any image in any graphics mode or resolution (including HAM, overscan and Extra Halfbrite modes). The program features Hyper-Slice Software technology which uses the Amiga Blitter chip to accelerate the graphics processing speed by a factor of ten. **PIXmate** retails for $69.95. For details contact: Progressive Peripherals & Software, Inc., 464 Kalamath St., Denver, CO 80204. Or call: (303) 825-4144.

## Card Sharks

While you're playing **Power at Sea** watch out for **Card Sharks,** also new from Accolade. This game features three different styles of Poker, as well as Blackjack and Hearts. After choosing a game the player selects from opponents such as Reagan, Gorbachev or Thatcher. **Card Sharks'** suggested retail price is $29.95. For details contact: Accolade, Inc., 20813 Stevens Creek Blvd., Cupertino, CA 95014. Phone: (408) 446-5757.

## Epyx Named Olympic Licensee

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Continued on page 10




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video games. "While this license has obvious and proven value as an umbrella under which we can merchandise and market our products, we also see it as an opportunity to support our U.S. Olympic Team," said David Morse, Epyx chairman and CEO. Epyx publishes the popular **Winter Games** and **Summer Games** series.

## Dragon's Lair

Electronic Arts has released **Dragon's Lair,** two adventures on one disk for the Commodore 64. In both stories you are Dirk the Daring. In the first story you duel Singe the Dragon, who has kidnapped Princess Daphne. If you rescue the princess and live to fight another day, you'll be up against a 10-foot Lizard King in the second scenario. **Dragon's Lair** retails for $24.95. For more information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Phone: (415) 571-7171.

## Mount Murdoch

Kidsview Software, Inc., has released **Mount Murdoch,** a large-character adventure for kids on the Commodore 64. In **Mount Murdoch** a storm forces you to seek refuge in an old building full of treasures and mysteries. The companion disk which is included allows teachers and parents to write their own adventures in quadruple-character size. **Mount Murdoch** is available for $39.95 from Kidsview Software, Inc., P.O. Box 98, Warner, NH 03278. Or call: (603) 927-4428.

## Sherlock: Riddle of the Crown Jewels

Infocom's latest offering of interactive fiction is **Sherlock: The Riddle of the Crown Jewels,** in which you assume the role of Watson, Sherlock Holmes' ever-present sidekick. You have 48 hours to sort through a series of clues and recover the crown jewels before the Queen's Jubilee. The Commodore 64 version retails for $34.95. The Amiga version featuring high-quality sound retails for $39.95. For details contact: Infocom, Inc., 125 CambridgePark Dr., Cambridge, MA 02140. Or call: (617) 492-6000.



## Skyfox II

Electronic Arts has launched **Skyfox II: The Cygnus Conflict,** a sequel to their popular **Skyfox** air combat simulation, which finds the Skyfox Warpfighter in outer space. **Skyfox II** is a single-player simulation with varying levels of difficulty and ten challenging missions. Suggested retail price is $29.95. For more information contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Phone: (415) 571-7171.

## Spectrum Electronic Network

Spectrum Electronic Network, an "off-line" national BBS on disk has released an updated 4.04 operating system, which supports color text display and E-Mail editing features. Spectrum is a multi-interest BBS exclusively for Commodore 64/128 users offering over 20 SIGs. New SIGs include "Online!" for telecomputing fans; "Art Gallery," a forum on 64 graphics, and "Music Studio." A GEOS forum is also in development. The network has also expanded its Freeware Library. Spectrum's subscribers pay a one-time fee of $16.95 for the operating system and $6.00/month for which they receive a new disk each month. For more information contact: Spectrum Electronic Network, P.O. Box 4903, Panorama City, CA 91412.

## Demon Stalkers

Electronic Arts has released a 3D action adventure game for the Commodore 64. **Demon Stalkers: The Raid on Doomfane** combines 100 levels of dungeon mazes and a construction set for making your own. The one- or two-player game retails for $29.95. For details contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Phone: (415) 571-7171.

## Outrageous Pages

Electronic Arts' Batteries Included line has released **Outrageous Pages,** a paint and graphic layout program for the Commodore 64. **Outrageous Pages** is designed for creating newsletters, calendars, certificates, signs, flyers and invitations. The program offers 50 different fonts and a library of 80 pieces of clip art. Suggested retail price is $49.95.

Electronic Arts is also offering an "upgrade" for current owners of other Commodore graphics programs (**Printshop, Newsroom, Create a Calendar,** etc.). Customers who send a check for $25 (plus $3 shipping and handling) along with the manual cover of their current program before April 1, 1988, will receive **Outrageous Pages.** Orders should be addressed to Electronic Arts, Outrageous Pages Upgrade Offer, P.O. Box 7530, San Mateo, CA 94403.

## Torchbearer

Free Spirit Software is shipping **Torchbearer** a new role-playing adventure for the Commodore 64. The player must explore the island of Pastoria in search of the

Continued on pg. 12

# "You're pond scum, McGibbits!"

THE MAD LEADER

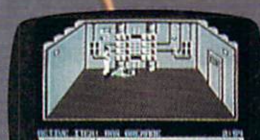



## STICK IT TO THE MAD LEADER 3 NEW WAYS

Jimbo Baby McGibbits is back—in Infiltrator II—where you'll find two of the hottest action categories: combat helicopter simulation and three new military adventures.



Step into Jimbo Baby's boots and get back into the action—where action means neutralizing a deadly nerve gas, nullifying a few neutron bombs and subtracting one



Mad Leader from this old globe.

Feeling up to it, Jimbo? Or have those five course meals and fancy dolls turned your mind to mush?

MINDSCAPE INC

# M I N D S C A P E

Continued from page 10

Torch of Truth, hidden years ago by an evil wizard. **Torchbearer** is available for $29.95 from: Free Spirit Software, Inc., 905 W. Hillgrove, Suite 6, La Grange, IL 60525. Phone: (312) 352-7323.

## PaperClip III

Electronic Arts has released **PaperClip III** for the Commodore 64 through their Batteries Included line. The latest update for the popular word processor includes unique features such as Instant Phrases, which allows the user to assign commonly-typed words and phrases to a single key; Column Editing permits the user to move, delete, sort and add columns of text. Suggested retail price is $49.95. For further details contact: Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. Or call: (415) 571-7171.

## Spiderbot and Coil Cop

Epyx has added two titles to its growing list of MAXX-OUT entertainment products. In **Spiderbot** a single spider droid remains in an electronic jungle teeming with robotic insects. The spider droid must transform into Spiderbot and save the jungle from radioactive repellant. **Coil Cop** patrols a toy factory where he is the last plaything to survive a takeover by a master computer gone haywire. He must make his way through the factory collecting pieces of the bug-ridden computer program which can shut down the operation. Each game retails for $24.95. For more information contact: Epyx, Inc., 600 Galveston Dr., P.O. Box 8020, Redwood City, CA 94063. Or call: (415) 369-2999.




## Modem Prices Fall

Commodore has reduced the suggested retail price of their modems for the Commodore 64 and 128. The Commodore 1660 300-baud modem now retails for $49.95, and the Commodore 1670 1200-baud has been reduced to $89.95. Both modems are direct connect and feature auto dial and auto answer capabilities. See your local Commodore dealer to take advantage of these price breaks.

## Short Wave Listener

The **Short Wave Listener** (SWL) cartridge reviewed in the September 1987 issue of *Commodore Magazine* is now available from G and G Electronics. SWL translates Morse code and radio teletype signals into plain language and prints them on your screen. Formerly from Microlog, the rights to **SWL** have been sold to G and G Electronics, 8524 Dakota Dr., Gaithersburg, MD 20877, (301) 258-7373.

## MicroProse Moves

Due to expansion, MicroProse Software, Inc. has recently moved into a new corporate office and warehouse facility at 180 Lakefront Dr., Hunt Valley, MD 21030. Company president Bill Stealey explained that the company has more than doubled the number of employees at its headquarters in the past year, necessitating the move to the 36,000-square-feet facility.

## Gamco Releases

Gamco has released two math programs for the Commodore 64. **Percent** provides practice in working with percentages. Students are taught to write an equation, select the correct operation, and enter a final answer. **Percent Word Problems** gives students five word problems involving the basic concepts learned in **Percent.**

In addition, Gamco has released **Essential Grammar** and **Essential Punctuation** each containing over 300 incorrect sentences for students to diagnose. Each program retails for $44.95. For more information contact: Gamco Industries, Inc., Box 1911, Big Spring, TX 79721. Phone: (915) 267-6327.

## People/Link Expands

American Home Network, Inc. has announced the addition of several new services to its People/Link network. The new services include on-line shopping and airline reservation systems. People/Link has also recently lowered its rates. For details contact: American Home Network, Inc., 350 N. Clark, Suite 650, Chicago, IL 60610. Or call: (312) 670-2666.

## Studio Magic

SunRize Industries has introduced **Studio Magic** special effects and MIDI sequencing software for the Amiga. **Studio Magic** includes a digital sound editor. In addition to the standard cut, paste, insert and overlay editing tools, the program provides 14 advanced effects such as echos, delays, flanges, comb filters and compression. **Studio Magic** retails for $99.95. For details contact: SunRize Industries, 3801 Old College Rd., Bryan, TX 77801. Or call: (409) 846-1311.

## Wooden Ships & Iron Men

Avalon Hill's latest simulation **Wooden Ships & Iron Men** re-creates the battles and campaigns of sailing ships in the Revolutionary and Napolenonic eras. Each ship is described in depth including the number and type of sails, hull thickness and the quality of the crew. Eighteen nationalities and 13 ship types are available for your own designs. For further information contact: The Avalon Hill Game Company, 4517 Hartford Rd., Baltimore, MD 21214. Or call: (301) 254-9200.

# Lou Sander's Tips & Tricks

Compiled by Louis F. Sander

*This month we feature some time-proven tips for increasing your computer knowledge, plus more than a dozen tricks for commercial software of the non-amusement variety. As always, of course, there are several nifty programs for you to try.*

*If you'd like to share your own tricks with our readers, write them up and send them to:*

*Louis F. Sander*
*Post Office Box 101011*
*Pittsburgh, PA 15237*

*We pay from $10 to $50 for tricks used in the column.*

**Resources for learning:** My computer knowledge has come a long way since I bought my first Commodore PET in 1979. Here's my personal advice on increasing your own knowledge of computers and computing.

First, remember that computer knowledge isn't very hard to acquire. There's a huge amount to know, but none of the pieces are very difficult. Fortunately for us all, once you have a basic fund of computer knowledge, the rest of it comes rather easily. Mostly, it's a matter of how much time you put into learning it.

Second, always read the manual. In fact, read everything you can get your hands on. Written material is extremely important in learning about computers, and if you aren't an active reader, you won't be a very good computerist. The ideal combination is practical experience on the keyboard combined with voluminous and widespread reading.

Computer-related printed material comes in many varieties, and you should become familiar with all of them. Magazines are vitally important, and my recommendation is to subscribe to *Commodore Magazine* and browse the others at the newsstand. When your browsing uncovers something interesting, buy that issue and take it home. If you follow my advice, you'll find that your subscription gives you a monthly exposure to new information at a very reasonable price, while your browsing gives you broad exposure to the field.

Speaking of magazines, it's a good idea to keep one issue, any issue, right beside your computer. Go through it every week or so, and you'll be amazed how much you learn each time. Sooner or later, you'll understand every word in that particular issue, and when that happens you can consider yourself an expert.

Your manual is another type of computer-related printed material. Refer to it often, and don't be afraid to write in it. Use a marker to highlight the important parts, and use a pen to make notes in the margins. You'll be surprised how often you return to them. It's also a good idea to put tabs on each important chapter.

A Programmer's Reference Guide or similar book is vital if you want to program. It contains specific descriptions of each command and its variations. Mine is tabbed and highlighted to death, with plenty of notes in the margins.

But if you want to learn to program, the Programmer's Reference Guide is not the book to read. If you want to learn to program, get a book that teaches people to program. These books are available at any book store, and many of them are pretty good. They have titles like *Learning to Program in BASIC*. Look for one with sample programs and programming assignments, because when you work them out, you learn. The book I learned from is *A Bit of BASIC* by Dwyer and Critchfield. It wasn't oriented toward Commodore BASIC, but it did the trick for me.

When you're reading computer material, remember that every word counts. (It's just the opposite of *People* magazine and the like, where it's perfectly acceptable to skim). Also remember that computer books are organized into chapters, subchapters and so forth. Study the Table of Contents until you're familiar with the general organization of the book, then dig into the chapters that interest you. Reread each section until you understand it.

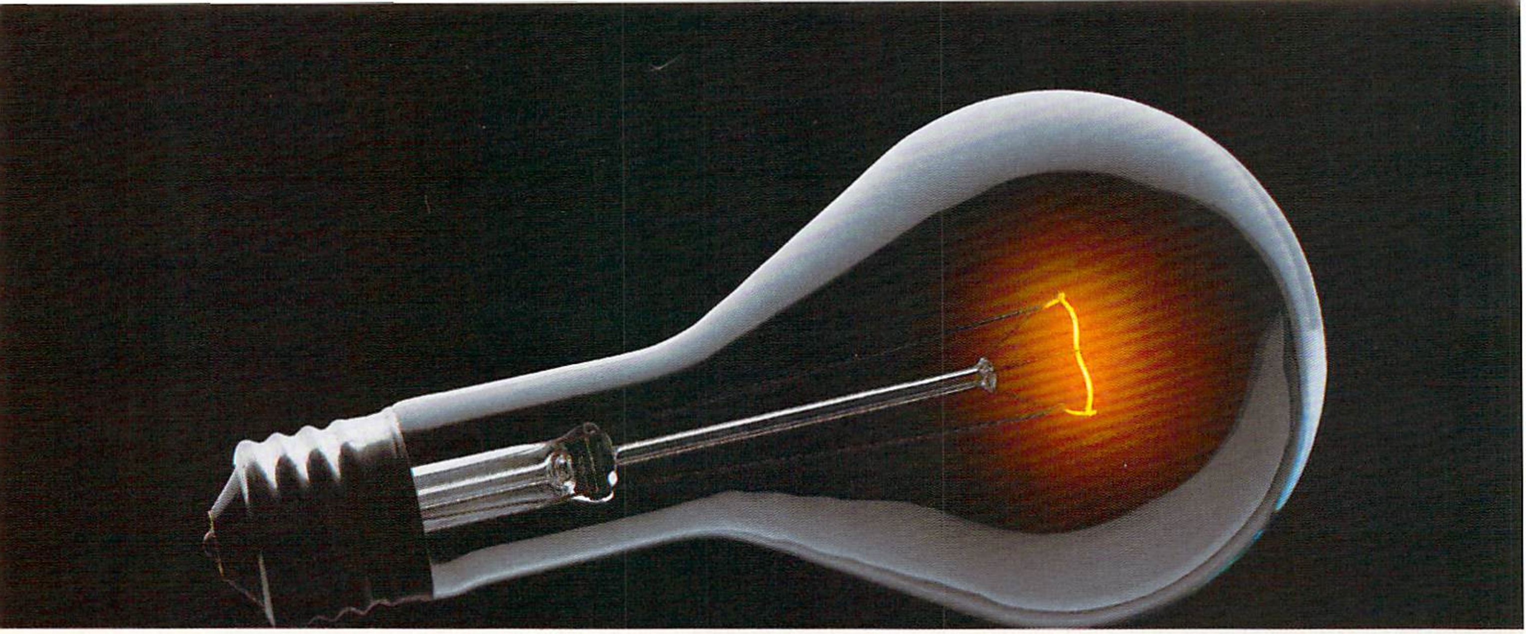
The third way to increase your computer knowledge is by finding yourself a teacher. There are plenty of schools with computer literacy courses these days, and plenty of schools with programming courses. If you stick with the elementary or non-credit courses, you'll find them rather inexpensive.

Teachers are also found in user groups, where they're likely to be called just "friends." Computer friends were my most important resource as a beginner; without them, I'd never have made it. None of them were genuine experts, but each of them knew something I didn't. And every time they'd teach me something, they'd be inspired to learn something else.

So that's my personal advice on learning about computing: approach the matter with confidence, read and reread extensively, and find yourself a teacher and a friend.
*Louis F. Sander*
*Pittsburgh, PA*

**64 DOS Wedge precautions:** The Wedge is very convenient for making disk access easier, but its use extracts a time penalty. Since the computer is constantly checking for wedge commands,

*Continued on page 117*



# CompuServe. You Don't Have To Know How It Works To Appreciate All It Can Do.

CompuServe is a computer information service. You subscribe to it. In return, you have access to an incredible amount of information, entertainment, communications and services. Here are a few of the hundreds of things you can do.

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**CB Simulator** features 72 channels for "talking" with other subscribers. National **Bulletin Boards** let you post messages where thousands will see them. Friends, relatives and business associates can stay in touch through **EasyPlex™ Electronic Mail.**



More than 100 **CompuServe Forums** welcome participation in discussions on all sorts of topics. **Software Forums** help with online solutions to software problems. **Hardware Support Forums** cater to specific computers. There's even free software, and online editions of computer periodicals.

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Play all sorts of sports and entertainment trivia games, brain-teasing educational games plus TV-type game shows with "live entertainment." Or, for the ultimate in excitement, get into an interactive space adventure.

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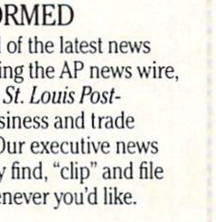
## INVEST WISELY

Get complete statistics on over 10,000 NYSE, AMEX and OTC securities. Historic trading statistics on over 90,000 stocks, bonds, funds, issues and options. Five years of daily commodity quotes. Updates on hundreds of companies worldwide. Standard & Poor's. Value Line. Over a dozen investment tools.



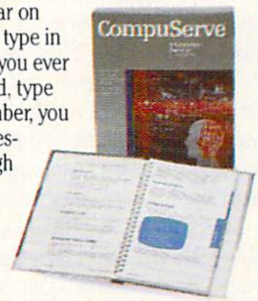
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Before you can access CompuServe, you need a computer, a modem (to connect your computer to your phone) and, in some cases, some simple communications software. Now you're ready to order. For your low, one-time subscription fee, you'll receive:

- a complete, easy-to-understand, 200-page spiral-bound Users Guide
- your exclusive preliminary password
- a subscription to CompuServe's monthly magazine, *Online Today*
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# AMIGA Tips & Tricks

Compiled by Tim Jones

*If you have an item that you would like to submit for use, you can send it to:*

*Commodore Amiga Tips*
*651 Outrigger Dr.*
*Deltona, FL 32728*

**MIDI From *Deluxe Music Construction Set:*** When loading a new score, or working on an old one through MIDI, be sure to remove all internal instruments from memory *before* establishing any MIDI channel(s) (SOUND window then REMOVE INSTRUMENT). With 512K, any internal instruments have a tendency to crash the system when a MIDI channel is opened.

You can hear only one MIDI channel at a time, therefore, set up only one channel from the SOUND window. Use this channel for playing your work. Next, select MIDI ACTIVE and MIDI INPUT ENABLED. Now, under the MIDI PRESET requester, select one external sound from the synthesizer and click on OK; move the flashing red bar to the staff you want the instrument assigned to; move to the MEASURES Window and select SET INSTRUMENT. Now, you just alter your presets as desired, select OK and then SET INSTRUMENT to each staff.

The Amiga preset range is from 0 to 127. Since some synthesizers use a range of 1 to 128, you may need to adjust your preset number so that the preset that you request is actually what you are getting. The best way to determine if this is necessary is to refer to the manual that came with your synth.

MIDI ERROR! from the synth is fatal. The Amiga will probably either lock up or reboot, thus destroying any work you have done. You can avoid this by establishing the synth MIDI channel before assigning the same channel in *DMCS*. The synth must also report MIDI ON, a MIDI OFF status may cause a similar fatal error.

If you are going to do any notational editing, (dynamics, text insertions, etc.) save them until you have all of the notes correct. After the notes are right, make a couple of saves and then make your edits. When working with large compositions, it's best to work on small sections and resave the file before continuing.

A minor quirk exists with the keyboard shortcuts. The number pad will give you note values, but not rests. For rests, you must use the left SHIFT and the typewriter numbers.

If your composition requires special sounds from your synth, such as wind, *DMCS* is unable to play them. Instead, you will hear a pitched note, not the sound effect. Disappointing, but *DMCS* is primarily a notational program.
*George R. Burnet*
*Palm Bay, FL*

*[Thanks for the good MIDI info. I spent many hours trying to figure out why I was locking up when opening the MIDI channel in* DMCS, *and your statement about MIDI ERROR hit home. - taj]*

**Loading SAMPLED Sounds With *Sonix:*** If you are using *Sonix* from Aegis and have been greeted with the "Can't Load Instrument" requester when trying to load a sampled sound while loading a score, there is a simple fix: prior to loading the score, load *any* sampled sound manually. For some reason, *Sonix* has a problem loading a sampled sound from within a score, and performing a manual load straightens out a pointer or two. From then on, all sounds will load properly.
*Sam Siragusa*
*Orange City, FL*

**AmigaBASIC Cut and Paste:** Ever wish that the AmigaBASIC editor allowed the editing of multiple source files to make cutting and pasting of code between programs easier? While you can get very creative with MERGE (i.e., MERGE both files then delete unwanted lines or delete lines in a working copy of one file, save the remainder as a new file then MERGE that with your other file), there is a simpler way.

Load the file containing the code segment that you wish to add to the new file. Now, highlight the code you want copied and either CUT or COPY it using the EDIT functions. Next, return to the OUTPUT window and type NEW. Load the second program, position the cursor where you want the code to be added and then select PASTE. The code segment that you CUT or COPIED from the old program will appear at the appropriate place in your new program. The key here is that a NEW command does not clear the cut and paste buffer, so you can move code between programs very easily using this method.

While this is not a complete answer to multiple window editing, it does allow more flexibility when working with AmigaBASIC's built-in editor.
*Earl Davis*
*Marion, OH*

**More Memory With Workbench:** Here's a way to get a bit more memory when you use the Workbench to access your programs:

By dragging the ICON of your program out of its window and onto the actual Workbench and then closing down its window, you will return between 8K and 32K of memory that was lost with the window open. Dragging the ICON onto the Workbench does not change the structure of your disk in any way, nor does it copy the file to RAM:, it simply allows you to close the window and return the memory that the window was using for its display to the system pool for your application to use. If you are using a 512K machine, this may be the difference between some of the newer programs running or not running.
*Jeff Stegal*
*Anchorage, AK*

*Continued on page 128*

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In the first Module, for example, when your sample program (Declining Interest Loans) appears on your screen, you'll find errors on certain program lines. You'll also see that the program is only three-quarters completed.




Now comes the fun part. You'll discover how this program is built, and in the process you'll learn how to identify and correct errors. And by the end of Module 1, you'll actually have completed this program yourself.

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# SCIENTISTS A STOP THE AGI

Time passes. Things get old. Let's face it, even Willie Mays retired. So there's no way your Commodore can compete with a newer machine, right?

Wrong.

The fact is that there's actually more power in your Commodore 64 or 128 than when you bought it. All you need is GEOS or GEOS 128 to find it.

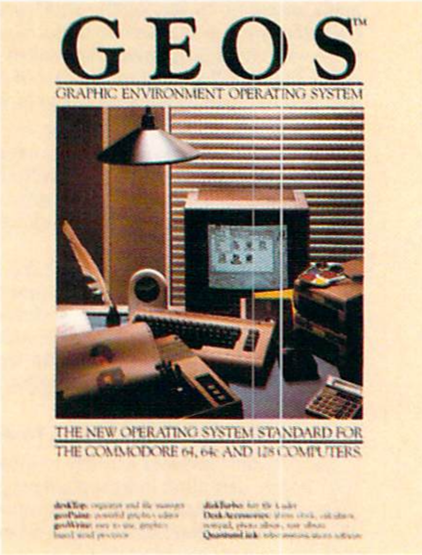
GEOS is the revolutionary operating system that works your hardware up to seven times harder than it's ever worked before. Loading. Processing. Accessing information. All at the mere touch of a mouse or joystick.

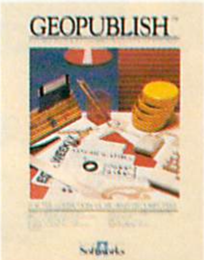
**Time Warps Discovered**

With GEOS, everything speeds up. Including you. Because the system is incredibly fast and ridiculously easy to learn: GEOS shows you options, you point at what you want and click your mouse.

End of lesson.

Now, once you know that, you know how every other GEOS application works, too. Like geoWrite, which lets you punch up paragraphs with five different fonts. Or geoPaint, which dresses up diagrams with an arsenal of artistic appliances. Both are built right into the GEOS disk. And when you put them together with geoWrite Workshop's LaserWriter compatibility, every new GEOS document comes out looking like an old master.




**GEOPUBLISH**

NEW The desktop publishing program that lets you design formats, column widths and page layouts. Accepts any geoWrite text and converts non-GEOS text. Wraps text around graphics automatically. Headline fonts up to 192 pt. Complete graphics toolbox.



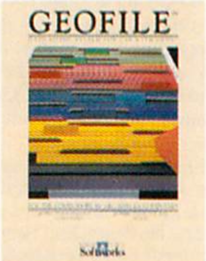

**GEOCALC**

The GEOS-compatible, number-crunching spreadsheet for tracking and analyzing numerical data. Create your own formulas, perform calculations for anything from simple geometry to "what if" cost projections.




**GEOWRITE WORKSHOP**

NEW All the GEOS-compatible tools a writer needs, including new geoWrite 2.1 with headers, footers, margins to 8" and features to justify, center, search and replace text. Includes a Text Grabber (for converting text from programs like Paper Clip), geoMerge and LaserWriter printing capability.




**GEOFILE**

The GEOS-compatible database manager that sorts, edits and prioritizes whatever data you feed it. You fill out the "input form," specify your command, and geoFile takes it from there.




**GEOPROGRAMMER**

NEW A programmer's dream for writing your own programs or supercharging someone else's. With easy yet mind-boggling features like graphics that insert by simply cutting and pasting directly from geoPaint. Comes with geoAssembler, geoLink and geoDebugger for modular assembly and testing.




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NEW Over 28,000 word geoDictionary for checking spelling. Lets you add words, switch dictionaries, edit, and automatically search and replace. Customize and create fonts up to 48 pt. with geoFont.

# AT BERKELEY NG PROCESS!

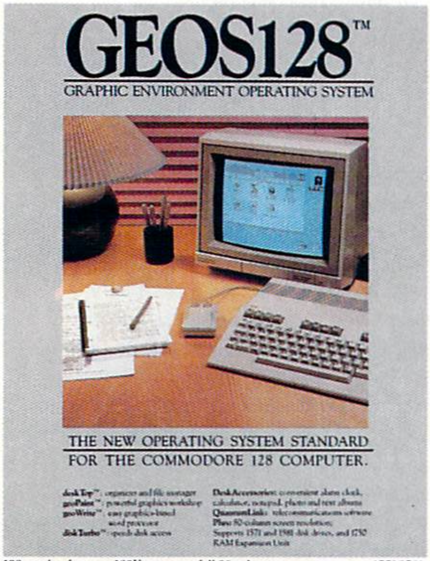
**Avoid Old Age Forever!**

But how does all this affect your Commodore's future? Well, it means you don't ever have to worry about it becoming obsolete, because there are all kinds of GEOS applications for almost every purpose.

You can finally get organized with geoFile, the database that searches, finds and lists almost anything that you want to search, find and list. You can manipulate mathematics or figure out financial formulas with geoCalc. If writing's your style, geoWrite Workshop can help you hammer out any kind of report. And geoPublish is the desktop publishing program that is still making headlines throughout the entire industry.

Of course, that's merely a sampling of what the GEOS environment has to offer. Because even as you read this, legions of our engineers are hard at work, developing even more GEOS applications for even more uses.

All of which means you get a whole lot more out of your Commodore than you ever bargained for. And while that may not actually keep your Commodore from getting older, that's certainly something it could live with for a long, long time.




128 version features 128K memory, full 80 column screen, supports 1571/1581 disk drives. 1750 RAM expansion and runs at a full 2 MHz for lightning speed.

**Berkeley Softworks**

The brightest minds are working at Berkeley.




**DESKPACK**

**NEW** Six GEOS-compatible applications: Graphics Grabber for importing art from Print Shop,™ Newsroom™ and Print Master™ graphics; Calendar; Icon Editor and Black Jack Dealer. Now includes geoDex, the GEOS-compatible directory that allows you to create lists by name, address, phone number, and geoMerge to customize form letters and invitations. In either 40 or 80 col. mode.




**FONTPACK 2**

**NEW** A collection of even more fonts for use with GEOS applications, in various shapes and sizes for more expressive and creative documents. Includes font editor. In either 40 or 80 column mode.



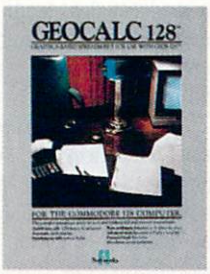

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**NEW** All the GEOS-compatible tools a writer needs, including geoWrite 2.1 with headers, footers, margins to 8" across and features to justify, center, search and replace text. Includes a Text Grabber (for converting text from programs like Paper Clip), geoMerge and LaserWriter printing capability. Features full 80 column screen.




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Reviewed by Mark Cotone

# Paperboy

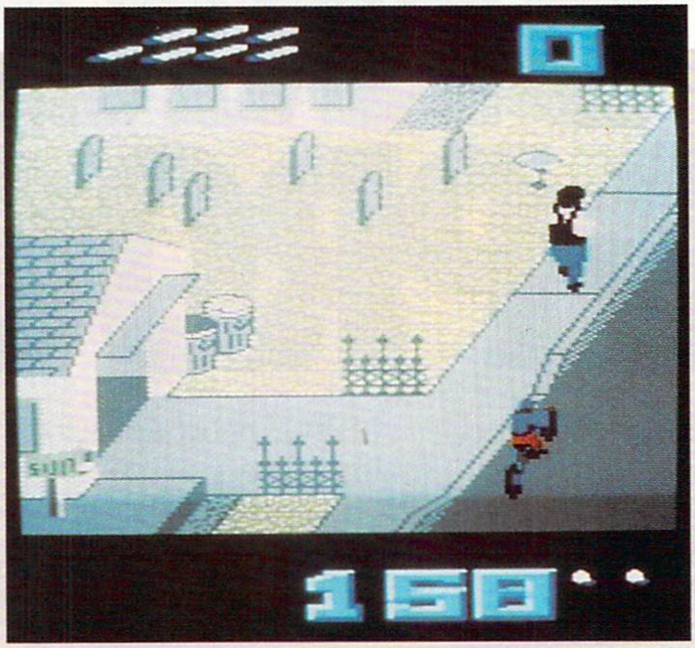
**Computer:** Commodore 64
**Publisher:** Mindscape, Inc.
3444 Dundee Rd.
Northbrook, IL 60062
**Medium:** Disk
**Price:** $34.95

Oh, the things we take for granted; those perceived privileges of everyday life that stand virtually unnoticed until they are suddenly discontinued or disturbed. Take, for example, the delivery of the local newspaper. Each day, at some prescribed hour, we all unthinkingly go to our doorsteps fully expecting to find our daily edition patiently waiting for our consumption. It becomes an integral part of our daily routine.

Yet, do we ever stop to consider the difficulties of this delivery process, all of the possible problems facing our news carriers as they struggle to complete their appointed rounds? Probably not; that is until now, of course. For with the help of Mindscape's new home delivery of that arcade blockbuster *Paperboy*, we are all about to become duly entertained and enlightened.

At first, the object of this game will almost appear mundane. You are asked to climb aboard your bicycle, ride down the street and stuff a few copies of the *Daily Sun* into some subscribers' waiting mailboxes. It will seem like easy money, especially with the simple-to-use video vehicle that's been provided. The joystick acts as both the handlebars and pedals of your standard two-wheeler, with its position used to determine speed and direction. A front-mounted mesh basket keeps folded editions of the paper within easy reach, so when you spot an empty *Sun* box along your route, a mere tap on the fire button will send a paper whirling towards its destination. Controlling this machine is a snap, and with one trip around the block you'll feel like you've been riding it for years.

The play field is a marvelously detailed, colorful 3D neighborhood representation, packed with all the sights to be found in a typical suburban setting. The houses are of the one- and two-story single family design, with manicured lawns, swept sidewalks and paved streets alive with the activities of a busy community. Home owners are out running errands, pets frolic in wide-open yards, children are playing with toys and county workers are finishing off some roadside repairs. To the casual observer, everything would certainly appear pleasant enough.




Send a *Sun* crashing through a non-subscriber's window, and you'll be rewarded with a generous supply of bonus points.

But through the eyes of a seasoned carrier, a formidable challenge is forming. This seemingly harmless slice of normalcy is transforming into a treacherous battlefield chock full of potential career-ending hazards. Pedestrians out on the stroll become moving road blocks. Cars, motorcycles and skateboards clog the street with annoying traffic that always assumes the right of way. Cats and dogs scamper and dart under your wheels, curbs straddle your path with unobtainable heights, and storm gratings lay waiting to catch your tires and twist you to the ground. The usual street bustle becomes an ever-changing obstacle course, forcing the player to divide his attention between the houses on his left, where he must accurately toss his papers, and the tangled road before him, where animate and inanimate environmental elements create dangerous distractions to the job at hand. It's unique, it's exciting, and it's tough.

As with most carriers, you are asked to deliver your papers on a daily basis. The work week begins on Monday, with eight of the 20 homes along the route requesting a copy. When a customer successfully receives his paper, you are awarded with a modest number of points for your competence, and everyone stays happy. But if you should inadvertently miss a house or two along the way, your irresponsible actions will not go unpunished. Within minutes the disgruntled customer will be on the phone with the district office demanding to be dropped from the subscription list—no ifs, ands or buts. In this case, no news is bad news, for at the end of each day, your employee receives an evaluation report to note your progress and tally your score. Missed houses will be reflected in a low point total, with a completely bypassed route placing you among the ranks of the unemployed. But as long as you can manage to hold onto at least one paying customer, you will be allowed to ride on into the week, where additional hazards and obstacles gather to make each day progressively more difficult.

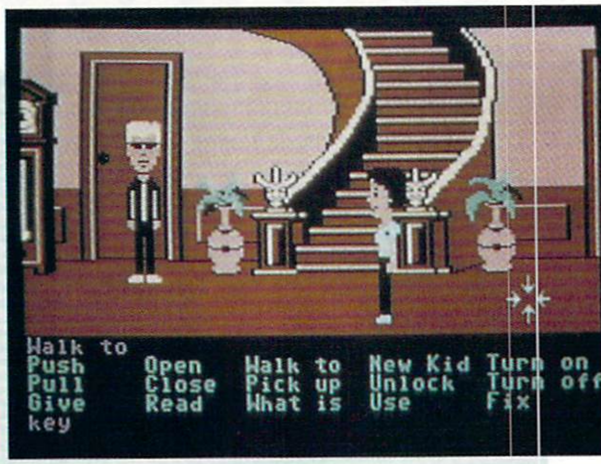
When *Paperboy* was introduced to the arcades, its uncommon thematic foundation was enough to catch the attention of the curious, creating a sizeable amount of initial player interest. But it's the solid play mechanics that have since kept its ever-growing audience captivated; mechanics that have not lost any of their lus-

*Continued on page 63*

Reviewed by Russ Ceccola

# Maniac Mansion

**Computer:** Commodore 64
**Publisher:** Lucasfilm Games
Activision
2350 Bayshore Pkwy.
Mountain View, CA 94043
**Medium:** Disk
**Price:** $34.95




Patients started disappearing from the County Hospital, cows started giving purple milk and chickens were laying purple eggs.

So you want to be in movies? And you say that you like video games? Well, Lucasfilm Games just may be able to accommodate you. In their latest release, distributed exclusively through Activision, you take part in what is essentially an interactive movie that follows one of many story lines. *Maniac Mansion* pits you against a large group of meanies in the structure of the title. So grab a couple of friends, bring your intuition and jump into this challenging graphic adventure.

Maybe I should explain the story behind this bizarre mansion so you understand what you're up against. About twenty years ago, a meteor crashed into the earth on the outskirts of town near the mansion owned by Dr. Fred and his wife, Nurse Edna. Patients started disappearing from the County Hospital, cows started giving purple milk, and chickens were laying purple eggs. Secretly, Dr. Fred left the hospital, and he and his wife took their geeky kid, Weird Ed, out of school. Then the whole family withdrew into the old Victorian house, now dubbed the "Maniac Mansion."

Local teenager Dave Miller believes that this strange mansion is the reason why his college sweetheart, cheerleader Sandy Pantz, has mysteriously disappeared. He has tried to convince local authorities to investigate the mansion and grounds, but he was met with only laughs. Now, in order to complete the quest to save Sandy and find out what lies at the heart of the mansion, you take on the role of Dave Miller. To help you in your adventure, you can select two friends from a list of six. You'll need their help, for the challenge that awaits you inside the Maniac Mansion is immense.

*Maniac Mansion* is a graphic adventure that combines the best in graphics with a text game format for entering commands. The trick here is that not once do you have to touch the keyboard for typing in any of these commands; *Maniac Mansion* is entirely joystick-driven. You move one of the characters around the house with the joystick and press the button when you want to enter a command. All possible commands are displayed in an on-screen menu below the animation window.

First you choose two characters other than Dave. The other six teenagers include: Syd, an aspiring new-wave musician; Michael, an award-winning college newspaper photographer; Wendy, a serious writer who wants to be a famous novelist; Bernard, typical geek and president of the physics club; Razor, lead female vocalist for a punk band and Jeff, beach bum more popularly known as "Surfer Dude." You simply click the joystick button on the characters you want and *Maniac Mansion* is under way.

Don't arbitrarily pick your companions; your choices are very important. Each character has unique talents to be used in the game. Each choice of characters gives you a different game to play that relies on the abilities of the team and presents puzzles that can be solved individually or by two people. Each combination of characters "colors" the story and includes new challenges to keep you from being bored.

The screen is divided into five parts and is visually well organized. At the top is the message line, where characters' words and game-related messages concerning disk swaps, etc. are displayed. The animation window takes up the bulk of the screen and shows the currently selected character's location in the house. The sentence line is where sentences appear after the desired verbs and nouns are selected from the verb list and inventory, respectively.

Each character has his or her own inventory, and there is no limit to what a character can carry. This fact is a necessity because of the inclusion of over 400 individual objects that can be manipulated in a game of *Maniac Mansion*. There are only 15 commands, one of which is unnecessary for Commodore 64 users. To switch control between characters, you can select the New Kid command. An exclusive feature for the 64 is the ability to switch kids by using the F1, F3 and F5 keys. This simple feature makes the adventure easier to play and adds an "A" to *Maniac Mansion*'s report card for user concern.

Aside from moving your character around on the screen, the only other action you must perform is command "construction." This is another unique feature to *Maniac Mansion*. To construct a sentence, press the button on the joystick and cycle through the verbs, pressing the button again on the one you want.

The verb will appear on the sentence line with any necessary connecting words. You finish the command by clicking on a noun in your inventory or an object in the animation window. To execute the command, double click on the noun or click the button once on the sentence line. That's all you need to know to play *Maniac Mansion*—the rest relies on your imagination and deductive powers.

Lucasfilm has designed yet another first-time software feature called the "cut-scene" to extend the feel of a movie. While moving around the mansion, player input may be halted involuntarily as action in the animation window switches to another part of the mansion. This enables you to see what Dr. Fred is up to or some other relevant happenings elsewhere in the house.

Try to think of any other time you could just sit and watch your screen (aside from the usual graphic ending of a game) without directing what happens on it. You should have trouble. Once more, Lucasfilm has succeeded in surprising me. In the first cut-scene, you see Dr. Fred with Sandy in his secret laboratory. Sandy is talking about getting saved and Dr. Fred walks up to the screen, looks straight out at you and says "That's what she thinks!" This game is incredible! The cut-scenes give you clues as well as being entertaining and, if you want, you can bypass them with the F7 key.

As you play *Maniac Mansion*, you'll eventually find out what Dr. Fred is really up to—total world domination . . . one teenager at a time. (No, I'm not giving the game away—it says that on the box cover.) The challenge of *Maniac Mansion* lies in the high number of puzzles and puzzles within puzzles that you'll encounter. The ending is unforgettable and will leave you both relieved and exhausted. If I haven't sold you on *Maniac Mansion* yet—don't worry; I've saved the best for last.

*Maniac Mansion* features incredible original electronic music and some out-of-this-world (literally!) characters. If Weird Ed, Nurse Edna and Dr. Fred aren't enough for you, there are Dead Cousin Ted, the Green Tentacle, the Purple Tentacle, Chuck the plant and a man-eating flower. All of these creatures have their own little quirks and on-screen personas that make them both loveable and at the same time despicable. Figuring out how to get past them is half the fun; the other half involves watching their actions.

*Maniac Mansion* incorporates smooth play and detailed graphics. The characters are distinctively Lucasfilm's, bringing facial expressions and personality to each individual character. Lucasfilm first used these types of characters and graphics in the computer adaptation of *Labyrinth* and more recently in the Q-Link on-line game, *Habitat*. The Lucasfilm "texture" makes the story jump out of the screen and threaten to pull you into Dr. Fred's laboratory.

Now for what you've all been waiting for—some hints. Since there is so much that must be done in *Maniac Mansion*, I'm offering mere pittance in comparison to what could be told.

Treat each puzzle as a separate entity and don't try to solve a bunch at once. You can easily get confused, and your efforts will be less effective. Since you have three characters at your bidding, use them all simultaneously for different puzzles in different parts of the house.

My favorite team of characters is Dave, Syd and Razor. A typical example of where character talents become useful is with the piano, radio and tape recorders. Since Syd and Razor are musically inclined, maybe they can solve some puzzle with these objects. Other characters are useful as well.

Experiment in feeding the Green Tentacle. Only one combination of food and drink will satisfy his hunger and thirst.

If you can't get the flashlight to work, you can still explore dark rooms by using the What Is command and moving around the room. There is some kind of light switch or lamp in most of these dark rooms.

Although most objects can be picked up, not all can be used. Make sure that you have as many keys as possible. They will be needed later.

These hints should keep your head out of Dr. Fred's machines for a while. In any case, run out and get *Maniac Mansion*. This graphic adventure has everything that a true fan of the "quest" type game could want. Just tell the Green Tentacle that I said "Hi." C

Reviewed by Russ Ceccola

# Nord and Bert Couldn't Make Head or Tail of It

**Computer:** Commodore 64
**Publisher:** Infocom
125 CambridgePark Dr.
Cambridge, MA 02140
**Medium:** Disk
**Price:** $34.95




Instead of doing and saying things the normal way, you must use time-worn phrases and word play.

Ever feel like you have a monkey on your back or that you just can't cut the mustard? Well, you'll feel right at home with this gew Infocom name, I mean new Infocom game, designed by Jeff O'Neill, author of the popular circus mystery called *Ballyhoo*. *Nord and Bert Couldn't Make Head or Tail of It* is a collection of eight short stories that revolve around the use of word play and verbal trickery. These short stories can be played independently and without knowledge of the others. They combine both new and old features of Infocom's interactive fiction with O'Neill's humorous situations and stories.

*Nord and Bert* takes place in the town of Punster, a fictional place where a disease is plaguing the community and its inhabitants by affecting speech and the way things are done. Instead of doing and saying things the normal way, you must use time-worn phrases and word play. Each story in *Nord and Bert* takes place in a different part of Punster. The idea for Punster came about late in the design of *Nord and Bert*, but the different stories evolved from the various types of word play available to use.

In order to successfully complete a short story in *Nord and Bert*, you must discover the type of word play or trickery on which that story is based and use it to guide all of your actions throughout the remainder of the section. For example, in "Go To the Shopping Bizarre," you must use homonyms. The tale takes place in the supermarket in Punster, and you must return all of the items in the market to their former selves, bringing normality once again. If you type MOUSSE while there is a moose standing in the aisle, the creature transforms into the chocolate dessert.

In a recent interview, O'Neill explained to me why he chose homonyms as the dominant form of word play for one of the short stories: "The language we write stories in at Infocom lends itself well to such transformations in that it not only recognizes words, but also recognizes how they are used. In one sense, *Nord and Bert* is like a 'What's wrong with this picture?' feature in a magazine. You can also look at the cliches and word play as objects and your goal is to 'find' these objects."

If you're still confused, explaining the method of madness behind "Shake a Tower" may help. This short story relies on the use of spoonerisms for its return to normality. A spoonerism is a phrase in which the beginning sounds of two or more words in the phrase are switched to make a new phrase. The title of the story is itself a spoonerism, with its name "spooning" to "take a shower." In this section of *Nord and Bert*, you first see a lead house in a forest. By typing in HEAD LOUSE, the house transforms into the tiny bug. You should get the gist of *Nord and Bert* by now.

The other types of word play used in *Nord and Bert* include: cliches, metaphors, idioms, words that begin with the letters "jac," 50's-era pranks and jokes and a house in which each room has its own personality. The variety imparted into the game by O'Neill gives it a distinct flavor and uniqueness that sets it apart from other Infocom games and other computer games. You can never be bored in *Nord and Bert* because you can always return to the place where you started by typing BEGINNING. Now, you can begin another short story and get back to the first one later—the game doesn't care what you do and keeps track of all your endeavors.

Although the eight short stories are independent, seven of them, upon completion, reveal a password to you that gains entrance into the eighth story, "Meet the Mayor." This final story ties together all of the skills you've learned in the other sections and puts before you the final goal of persuading the mayor of Punster to sign a decree banning all forms of word play and trickery in the town. O'Neill told me about the form of *Nord and Bert*: "I wanted to have the 'Meet the Mayor' section reserved until the end so that those who went through the trouble of playing all of the other sections would get some fireworks or climactic ending." I can verify for you that this technique works very well.

In the process of assembling all of the phrases, idioms, spoonerisms, homonyms and other word play for *Nord and Bert*, O'Neill consulted a book of cliches, a book of general word play and a list of homonym pairs. To further enhance the stories with better word games, O'Neill also talked to other employees of Infocom and outside testers. That is why, in the "Eat Your Words" scenario, you can now Goose the Cook as well as Cook His Goose.

For those of you not familiar with Infocom's works of interactive fiction, they are text-only games/adventures/stories that allow full creative control over captivating situations set in various "worlds" through the use of simple commands typed in your computer's keyboard. The commands you use are direction commands, action commands and the word play used to conquer a story.

*Continued on page 54*

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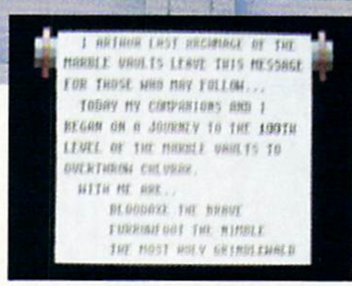

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Television Highlights

Weather

Continued Page 3

ED'S WEEKLY

The views and news of Ed.

December 3

Basquing In The Beauty of Andorra



Weather

Continued Page 17

Continued Page 3

More people reading stuff like this!

Continued Page 5

*Text can be printed in every font available through GEOS. These documents were printed on an Apple Laser Writer*

# VANISHING TIMES

A Berkeley Softworks Publication — Vol. XLMIV Number 4567

## EARTH TO BEGIN SPINNING IN OPPOSITE DIRECTION



A shocked consortium of scientists confirmed the world's worst suspicions Tuesday, when they announced that the Earth was indeed slowing down. They expect the planet to grind to a halt early Thursday, reversing its direction and getting back up to speed by Monday night.

Although the research was startling, the scientists urged people not to panic.

"I suppose I'd lock all the breakables in your cabinets," offers Dr. Lee Llevano, "but outside of that, I'd just tell people to hold on and enjoy the ride."

Apparently we're in for quite a ride. Dr. Dennis Rowland demonstrated the effect of the sudden reversal by dropping a raw egg into a MixMaster blender set on "puree."

"If we assume people have the consistency of this egg," Rowland asserted, "I think it's safe to say that the effect of this phenomenon will leave them in a state somewhat similar to finely ground beef."

Asked if there were anything the public could do to prepare for the

**"I'd just tell people to hold on and enjoy the ride!"**

catastrophe, Dr. Rowland thought a while and offered, "I always recommend fastening your seat belt. It just makes so much sense, don't you think?"

Analyst Staci Glovsky was less distressed with the news, asking "What's the big deal? Jeez, you guys are acting like a bunch of

Continued Page 8

## MAN BITES POODLE!



BERKELEY — Dozens of citizens watched in horror today as a man, who described himself as an animal lover, actually bit a miniature teacup poodle.

Donald Anderson, of Studio City, California, dismissed the incident as a case of mistaken identity. "Somebody asked me if I wanted a dog with mustard, and since it was close to lunchtime anyway, I just took a bite without looking."

The dog, responding to the name "Knockwurst," then gave out a yelp that bystanders recalled as sounding like "a cross between a gun shot and

**"Sure it was my mustard, but that doesn't prove a thing!"**

an air raid siren." In the process, the pinched pooch set a world record in the long jump of thirty feet, two inches.

Anderson was booked on felony charges of dog munching, poodle endangerment and assaulting a canine with intent to commit relish. He was later released on his own recognizance. The man who offered him the poodle has also been charged with attempting to apply mustard to a mutt, a misdemeanor in Alameda County.

"It's a smear tactic," yelled Rob Siegel, the man still being sought by police. "Sure it was my mustard, but that doesn't prove a thing. Besides, they have to prove with

Continued Page 4

### Television Highlights

This week, you can expect to find some of the best programs right on your own TV set at home. Following are some of the highlights:

Monday:
- **(4) 6:30 I LOVE LUCY** Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
- **(7) 8:30 WILD KINGDOM** Marlon sits in a studio safe and sound, while Jim risks his life for some unimportant animal.

Tuesday:
- **(2) 7:30 LAWRENCE WELK IN BULGARIA** The famed band leader takes you through 60 minutes of musical merriment, all the time wondering why he is in Bulgaria.
- **(5) 9:30 BRUCE LEE IN REVENGE OF THE MEATBALL** Epic hero Bruce Lee punches his way through pasta, and rescues a pizza from 600 Neopolitan Ninjas.

Wednesday:
- **(11) 6:30 I Love Lucy** Lucy and Ethel hatch a plot to get Lucy into Ricky's show at the club. (R)
- **(4) 8:30 Gilligan's Island** Gilligan and the Skipper finally wise up and figure out that Ginger and Mary Anne must be getting awfully lonely right about now, and go for (Continued Page 4)

### Weather

Local weather: Look for clouds throughout the morning, burning off near midday. Temperatures should soar to the mid 200's by late afternoon with heavy electrical activity and thunderstorms appearing around, oh, say

Continued Page 2

# T MADE GE NEWS.

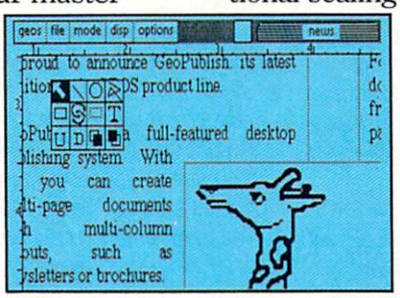
These days, the biggest story in the news is geoPublish. The page-making program for GEOS-equipped 64's and 128's that replaces lifeless layouts with page after page of powerful, punchy professionalism.

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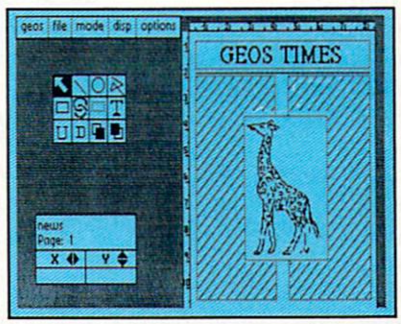
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Reviewed by Gary V. Fields

# Video Title Shop

**Computer:** Commodore 64
**Publisher:** DataSoft
19808 Nordhoff Place
Chatsworth, CA 91311
**Medium:** Disk
**Price:** $29.95




*Video Title Shop* is a versatile tool for producing title and credit screens.

The world has fallen in love with the video recorder—50 million have been sold in the U.S. alone. Until recently, however, there was no easy, affordable way to add animated graphics, credits or title screens to an individual tape. *Video Title Shop* brings some desktop video capabilities to the Commodore 64 user. It is a versatile tool for producing title and credit screens to give your videotapes a professional look.

While the program will not cause many local TV station managers to scrap their video editors, there are many people operating on limited resources (small businesses, churches, schools and individuals) who will find this the perfect, affordable solution to their video needs.

The program is designed strictly for creative video users. It allows them to easily create impressive animated screen displays which can be electronically spliced into their video libraries to give each tape a professional appearance.

I think most users of *Video Title Shop* will find its controls logical and easy to master—providing they spend the time necessary to read the manual and work through the tutorial material it includes. One thing that makes using the program intuitive is that the programmer didn't "reinvent the wheel." For instance, if you want to change the color of a pen or text, the default colors assigned to the keyboard's number keys are used (1 = black, 7 = blue, SHIFT/6 = light green, etc.). If you want to move text or objects around the screen, the cursor keys will do the work just as well as a joystick. The same logic is true when you select an option. You can either enter the option number (e.g., Pen number 1-4, Color choices 1-16) or press the cursor keys and each will be selected in sequential order.

The program comes with a fairly powerful graphic editor called Micro Painter Plus. With it you can create very impressive screen displays or backgrounds for your titles. It includes pattern fills, magnification and undo options. The documentation states screen displays created with other commercial graphic packages (*Koala Painter*, *Paint Magic* and *Quickdraw*) can be used with *Video Title Shop*. Owning none of those listed, I tried, unsuccessfully, to import graphics created with both *Doodle!* and *Flexidraw*. I would have liked to have been able to use one of those instead of *Video Title Shop*'s own graphic program because both have more powerful commands.

Once you begin to create screens, the power *Video Title Shop* offers is amazing. To begin your video cameo, you first recall a background screen you created with Micro Painter Plus, or one that comes on the *Graphics Companion I* disk (the disk, sold separately for $19.95, includes screens showing holly, wreath, fireplace, dove, church, bunny, heart, candle, diploma, American flag, etc.). Or if you prefer, you can go with a blank screen.

Next, you create text objects on the screen. These objects can be any color, any size and located anywhere on the screen. The way they appear and disappear is where the magic of *Video Title Shop* is revealed. The program comes with impressive object controls which cause the text to scroll on and off the page. A more impressive display is called "fizzle." It causes text to materialize out of a mist and then disappear into the same mist. Screens can be "wiped" on and off the page using a pleasing, professional-looking display similar to those shown during network newscasts. What is most impressive about these options is that they are all activated with a single keystroke and can be re-keyed and previewed until you are absolutely satisfied with the screen appearance, the sequence in which they appear, the font size and color used in each text object and the duration each object appears. When you have everything ready, you simply remove the command line from the screen, press the record button on the VCR connected to your 64 and press the command to begin the displays.

The code is so compact that up to 12 screen displays can be held in the 64's memory without accessing the disk. Actually, you may be able to squeeze more than a dozen screens in the system, but that was the most I've been able to combine. I suspect the fewer objects you use, the more pages you can include. But even the 64's limited memory doesn't greatly restrict the program's power, since it can refresh its memory quickly from disk and all you need do during the delay is pause your VCR until the next sequence loads.

The program's single absent feature is sound—there is no option to play music

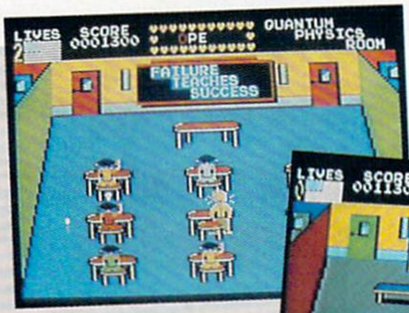
*Continued on pg. 96*

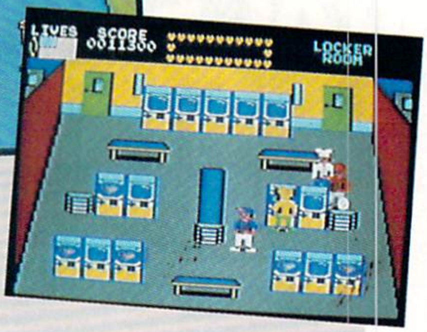

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Reviewed by Mark Cotone

# Mikie

**Computer:** Commodore 64
**Publisher:** Konami
815 Mittel Dr.
Wood Dale, IL 60191
**Medium:** Disk
**Price:** $13.99




Mikie has discovered girls, and yes, true to his character, "he likes them."

Remember Mikie, that cute, chubby, little freckle-faced kid who despised everything but his breakfast cereal? Well, he's still around, and as you might have guessed, he's no longer the finicky youngster of his television years. He's now old enough to be in high school and has developed into what we might consider an average everyday student; a growing boy whose normal maturing interests are beginning to stretch beyond the realm of toasted oats and whole milk. You see, Mikie has discovered girls, and yes, true to his character, "he likes them." As a matter of fact, there's one particular female student whom Mikie finds exceptionally attractive: a special schoolmate who he would even like to consider his one and only girlfriend. As we'll see in the new Konami release that bears our budding hero's name, when Mikie gets it in his head that he likes something, there's virtually nothing that can be done to stop him from getting it.

Let's set the stage: You are Mikie, a joystick controlled pupil who is quietly sitting through an afternoon lesson, when suddenly you remember that there's a very important message you've forgotten to give to your girlfriend. Unfortunately, your sweetheart does not have the same class schedule as you and at this very moment is busy studying in the schoolyard at the opposite end of the building. With strict academic regulations prohibiting teachers from approving any early dismissals, especially to infatuated pubescent boys like yourself, you feel that you are left with no options. When the teacher turns his back, you brace yourself, slide from your desk, and bolt for the door, initiating what will become a wild footrace across school grounds; you sprint to meet your girlfriend, and the adult moderators do everything in their power to stop you.

This contest's chase, although impetuous in its emotional motivation, is really a carefully planned arcade challenge designed to put your reflex skills to the hard test. The obstacle course separating the two lovers is comprised of five familiar institutional areas: a classroom, locker room, cafeteria, gymnasium and schoolyard. Each of these locations is outfitted with the appropriate furnishings and supplies, all methodically arranged to form loosely framed maze-like paths, alleys and dead ends for your surrogate to navigate. In the roles of the unsympathetic pursuers comes an assorted group of staff, faculty and students, who all remain hot on your trail, hounding you in an attempt to enforce disciplinary measures. My gosh, the things we do for love.

The entire escapade commences in your standard student-filled classroom and continues through the various sites in the order listed earlier. But Mikie is not given the privilege of moving freely in and out of each location. At the head of each room is a closed doorway; a single exit that will remain locked until Mikie can gather a series of hearts scattered throughout the

## Making the Grade: A Lesson Plan for the School Master

There's no substitute for a trained eye and a quick wrist when it comes to attacking an arcade game, but there are a few tricks I've discovered that might help Mikie pick up an extra step or two as he moves through the classrooms and corridors. Good luck. I'll meet you in the playground.

- In the opening classroom scene, you are instructed to gather all the hearts under the desks by "hip-zapping" (pushing) the students out of their chairs and then plopping yourself down in their vacated seats. That works well enough, but I've discovered a quicker, easier way to perform the same task. If you move behind each desk, positioning yourself so that your legs cover the heart and hide it from view, then you can collect the treasure by simply pressing the fire button. This technique will not only save you time, but it will also make you a harder student to catch.
- Picking up the bigger hearts requires three shouts, but they don't have to be successive. If you begin to air your lungs just as a staff member starts to close in, cut away and come back later. The program will keep an accurate record of how many shouts have been made at each heart.
- In the cafeteria, if you're having a little trouble gathering the large heart on the table, approach it from the left side so that your mouth and the heart are aligned. That should facilitate the pick-up process.
- There are about 22 seconds between launchings of the false teeth. Keep this in mind as you scurry about. If you should happen to lose track of time, notice how the teacher takes a distinct one-second pause just before he lets his choppers fly. If you're being pursued and the teacher suddenly lets up and stops, beware: the dentures are about to sail.
- When trying to move through the aerobic dance class, it is easier to avoid the exercisers and snatch the hearts if you make your evasive maneuvers laterally across the screen. If you try to make your cuts up and down, it's too easy for the unpredictable dancers to slide across and stun you as the teacher draws near.
- When you're moving down the stairs in the connecting corridors, the best way to avoid the custodian is to first let him approach, and then quickly move Mikie to the outside of the staircase by pulling the joystick down. This will actually let the characters pass right by one another without making any deadly contact.

class. Under desks, inside lockers, across floors and around fields he must dart and dodge, gathering the romantic treasures without getting cornered and caught. There are two kinds of hearts, each to be snatched in its own way. The smaller sized ones can be easily grabbed by simply passing your character over them. Nothing to it. But the larger hearts, three times the size and point value of their midget look alikes, can only be collected by Mikie shouting at them three times. This odd maneuver will prove to be a tough one, requiring players to first work at opening up a sizeable lead over their tenacious pursuers, so that they will then have enough time to stop and rapidly tap the fire button to initiate the screams. It's a timing move that will take plenty of practice. When the room's entire heart supply has been gathered, a bell will sound, the exit door will unlock, and Mikie will be granted access to a hallway connecting him to the next stage.

The game's principle challenge is one of avoidance, where you are forever straining to stay one step ahead of your high school hunters. To help you along, there are a few secret bonus items hidden throughout the building—like basketballs stored in the locker room or chickens roasting in the cafeteria ovens—which can be held and tossed at the chasers, momentarily stunning them and affording you a few valuable seconds of unhampered heart harvesting. But turnabout is fair play, so don't be too surprised if an enraged teacher attempts to impede your progress by trying to bean you with, of all things, his set of false teeth. I'm not sure I picked up the intended symbolism, if any, but a bop from these choppers will cost you one of your three lives.

If you happen to make it through the final phase of play, in which a squad of football players closes in on you in the schoolyard, you will be momentarily united with the girl of your desires, a victory tune will help celebrate, and then you'll be blinked back to the first classroom to do it all over again. But don't plan on even getting a look at these linebackers until you've invested at least a couple of hours at the joystick. These lessons come hard.

On close inspection, it might be noted that as far as game play goes, *Mikie* really presents nothing uniquely different. The high school sweetheart scenario is a clever facade used to dress the familiar hunt and hide maze genre. While *Mikie*'s graphics are certainly acceptable, the animation is occasionally missing some of the crisp precision that we've come to expect from this breed of arcade contest. But as I sat before my monitor making mental note of these minor criticisms, afternoon turned into evening, which later moved into night, and then quietly slipped into early morning. And I hadn't cared one bit. There I was, laughing with that sort of half-crazed chuckle of addiction, happily tugging at my joystick, ultimately failing my mission and immediately going back for more. *Mikie* may not be innovative art, but it certainly is a solid bit of arcade. It does what it sets out to do and provides enough colorful additions and high speed zap to make this familiar ground well worth your travel time.

*Mikie* is one of four new packages released by Konami under its Action City line, a subdivision of computer arcade contests that are being offered at bargain prices. Let's hope the remaining trio is as engaging as this initial offering.

Lightweight, challenging, inexpensive and above all, fun, this contest will be a welcome addition for all arcade buffs, as well as an enjoyable reprieve for others looking to unwind from some of their more serious and cerebral game sessions.

Hey, Mikie, I like it. C



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Reviewed by Jack Emberly

# Bank Street School Filer

**Computer:** Commodore 64
**Publisher:** Sunburst Communications
39 Washington Ave.
Pleasantville, NY 10570-9971
**Medium:** Disk
**Price:** $99.00



Guaranteed to hook kids are file subjects like ''whales,'' ''dinosaurs'' and ''eats.''

Databases have a maddening effect on teachers. Torn between the urge to learn and teach them and the fear of confusing syntactical commands to make most programs "do" anything, many avoid filers completely.

Enter the *Bank Street School Filer*, a program destined for wide classroom instruction in grades 5-12. This one satisfies the experienced teacher's demands for a sophisticated RAM-based filer with many advanced options while patiently answering questions such as "What is a database?" and "How can it help me?"

## Complete Teaching Resource

Everything from how to boot the program disk and retrieve a "file" (database) to creating and revising one's own databases is covered in ten lessons and reinforced in 29 worksheets and open-ended follow-up challenges. At the core of these are 27 "canned" or prepared files used to demonstrate concepts and options. Guaranteed to hook kids are file subjects such as "whales," "dinosaurs" and "eats." Teachers will be impressed with labor-saving files such as "finance," "inventory" and "overdue" (library file). These canned databases save both groups the frustration of having to set up a database before understanding their nature and value.

## The Package

Disks include program and backup, a teacher tutorial disk which overviews the whole program, the *School Filer* disk containing the pre-made databases, and a classroom "tools" disk which provides easy option deletion, renaming and printing of files. A thick plastic binder houses the lessons, activity sheets, thought-provoking questions and answers. In addition a handy reference manual restates all terms and options covered.

## Teacher Orientation

Teacher training begins with the tutorial disk. This six-part tour uses a baseball league file as a model of what a database is, how it is created, and how one manipulates information. At appropriate moments key terms such as "database," "field," "record" and "file" are defined within the league model. The computer creates a record form for the league (the data sheet for one team). Browsing through the data, searching and sorting the records, all follow at appropriate times. Finally, creating and printing reports is dealt with.

## More Teacher Lessons

Everything on the overview in the tutorial is reinforced by five binder lessons for the teacher. This time the teacher experiments with a typical office-type file called "students." The fields (categories) include name, address, phone number and contact person. Essentially, the objectives here are those the teacher will later present to students. Lesson one teaches the basics—how to boot the disk, retrieve a file, browse, update, add and save. Lesson two covers the two primary operations—finding and sorting. Lesson three explains how to print records and customize reports. In lessons four and five the teacher learns how to structure a file by defining the fields, and later, how to revise files. Continuous screen prompts and numbered directions in documentation make progress as easy as paint by numbers.

## Getting Students Started

Part II repeats what the teacher just learned—this time with students—in the form of seven lessons. A subsequent three-lesson section called "Later Explorations" focuses on creating one's own files. My grade seven students were able to skip some of the basics and move to this section. They used a database planning sheet (Activity #18) almost immediately to brainstorm a new file for our school's computer monitor list. Formerly we tried to manage all our information in a printed timetable. With a database we could now record each monitor's age, grade, list of known programs or degree of training. The advantages over timetables became clearly obvious.

This highly analytical problem-solving exercise taught us a valuable lesson about *School Filer's* labor-saving capabilities. To avoid the drudgery of collecting and entering all new computer monitor data we printed a blank form of the record to distribute to each monitor for completion. Each of my grade sevens then filled in a few records at separate machines. We then followed instructions on how to merge all of these into one file.

## Ease of Use

The simplicity of *Bank Street School Filer* extends both to searching and sorting routines and later to the selection of field types when creating databases from scratch.

In searching records students are prompted with a querying sentence that begins "Find every record where. . ." Next a side window illuminates the field names. After selecting one of these, the student continues the query with a verb such as "is," "is not," "is before" or "con-

*Continued on pg. 108*




Only Warpspeed loads, saves, verifies, formats and copies files at speeds up to 10x faster than normal!

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Reviewed by Gary V. Fields

# WordPerfect

**Computer:** Amiga (512K Required)
**Publisher:** WordPerfect Corporation
288 West Center
Orem, UT 84057
**Price:** $395.00

In the business world two terms—"word processing" and "*WordPerfect*"—have become all but synonymous. In fact, some power users refuse to take a computer seriously until the WordPerfect Corporation has bestowed their blessing by releasing a version of their best-selling program for that system. The program has earned this user loyalty by including any and every feature any writer, secretary, business owner, professor or student could want or need from a word processor. Plus, beyond the traditional word processing function, the Amiga version of *WordPerfect* includes a 115,000-word spell checker, healthy thesaurus, footnotes, multiple headers and footers, outline and math functions and powerful macro options.

Why is *WordPerfect* so popular among heavy users? They answer is simple—power and options. From the very beginning *WordPerfect* was targeted for the professional—not novice—user. And over the years, those users have offered suggestions for features they would like added, offered advice on how to improve the existing features and complained about features of the program they didn't like—and the WordPerfect people listened and made those changes. So the Amiga version of *WordPerfect* is more than just another word processor, it is a premium writing tool which has evolved over time. The program's options have expanded to include all the features a writer could hope for.

Beyond the traditional features users have come to expect in a word processor, this one includes widow/orphan protection (for professional looking printouts), footnotes, cancel/restore (lets you recover from deletion errors), automatic hyphenation, truly friendly speller/thesaurus options, an outliner, multiple document editing, true multitasking, macros, help screens, powerful DOS utilities, options to open a direct window into CLI and auto date formatting insertion—to mention only a few.

The package comes with four disks—*WordPerfect*, Learn, Print and Speller/Thesaurus. Whether you are new to word

From the very beginning *WordPerfect* was targeted for the professional—not novice—user. Perhaps best of all, the manual includes WordPerfect Corporation's toll-free support telephone number.




processing or are an old hand, you will appreciate the Learn disk. It is a collection of sample documents which match those discussed in the manual's tutorial. Plus it includes several documents which allow you to test your printer's features and help you match the software's features with those of your printer. The computer-using public would have a higher regard for the software industry if every company marketing productivity software spent the time and effort to market a similar disk for their products.

The Print disk lets you mate your printer and *WordPerfect*. Instead of supporting only the printers accessed via Workbench's Preference file, *WordPerfect* supports nearly 200 printers. The first time you access the print function from *WordPerfect*, you use this disk's options to tailor the printout. This is done through a simple option-driven menu. After you cursor through the options and save them to the *WordPerfect* disk, they are automatically set each time you boot the word processor. While this set-up procedure may be a bit alien to users familiar with other word processors, the actual task is easily done and fail proof. Should you ever change printers, or simply want to redo the setup, all you need do is repeat the procedure.

*WordPerfect*'s screen shows the text as it will appear when dumped to a printer, including margins, on-screen spacing, text styles (underline, bold and italic font faces) and page breaks. Headers, footers, footnotes and endnotes are the only information not shown on the screen while you are entering a document. These must be viewed, edited and formatted from a separate window. (The hidden formatting codes can be displayed and edited by selecting the "reveal code" feature.)

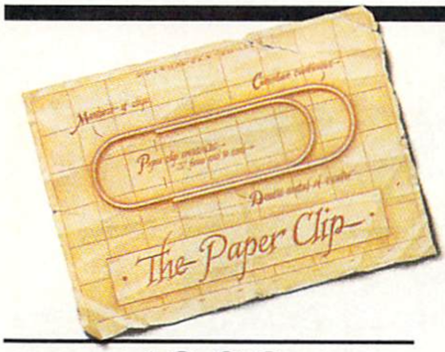
*WordPerfect* can be started from either the Workbench or CLI. Although the Workbench makes using the program as simple as point and press, I prefer using CLI and have it automatically prompt and update the date and time. While it is not essential to change that information each time you use the program, it is helpful since one feature of the program allows you to automatically input the date (using a variety of formats) into your documents, but more importantly, the date and time are stamped on your saved files so you can quickly separate old files from updates.

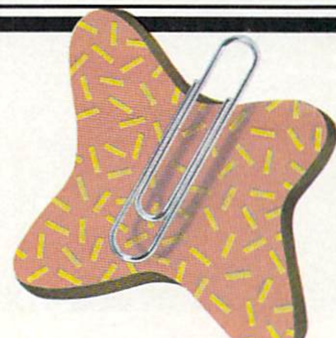
The program is completely multitasking compatible, so you can run a terminal program, a financial analysis package, a game or any other program at the same time you use the word processor. This, of course, depends upon your Amiga having enough memory to handle all those tasks. *WordPerfect* alone requires a minimum of 512K. I use the program with MegaBoard 2 (which adds two megabytes to my system) and have yet to run out of memory, nor does the burden of multitasking effect the program's speed.

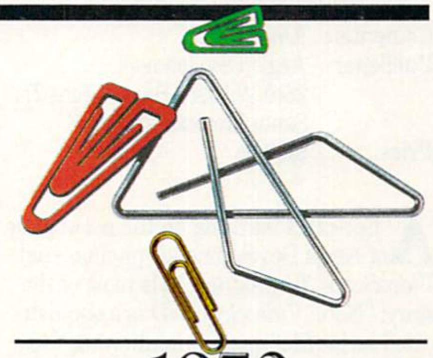
There is a charge for *WordPerfect*'s sophistication beyond its premium retail price tag—time. It is not a program you are going to master in one sitting or even one intense weekend of non-stop read-and-do. This program has too many options for quick mastery of them all. Instead, this is a product you will use and gain expertise with only by using. Thankfully, the program comes preset with popular parameter values (margins, font se-

*Continued on page 106*

# T·H·E EVOLUTION OF THE PAPERCLIP





## 1900

Norwegian inventor, Johann Waaler, patents the paper clip in Germany. The metallic device allows one to attach sheets of paper together.

## 1950

By virtue of its sheer, simple power, Waaler's paper clip endures to become an indispensable item for both the home and office.

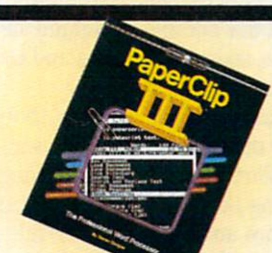
## 1970

While computers diminish paper flow, new-fangled variations of Waaler's paper clip emerge in an array of sizes, shapes and colors. Evolutionary note: When man can no longer invent, he must improve.










## 1982

Batteries Included invents a powerful word processing program for Commodore® users—PaperClip®. Compatible with virtually every popular printer, PaperClip provides users with fast, flexible editing and formatting freedom.

## 1986

PaperClip II becomes the #1 best selling C128® word processing program. Added editing and formatting features include word-wrap and an 80-column screen mode. Built-in telecommunications and a spelling checker make the second generation a supreme package. Omni Magazine calls PaperClip II "the Cadillac of word processors."

## 1987

Once again, Batteries Included outdoes itself—and the competition. Presenting more formatting commands than ever before, PaperClip III lets users select multiple line headers/footers, as well as outline formats. Pop-up menus provide easier access to a host of improved functions and printing options. The best keeps getting better . . .

## 1988

Upgrade to PaperClip III by April 1, 1988. We're so sure that this is the best C64/128 word processing program, that we invite you to upgrade from any other word processor by sending us $25.00 (plus $3 shipping and handling) along with the manual cover from your current program. If you already own previous versions of PaperClip, send us $15.00 (plus $3 shipping and handling) with PaperClip manual cover. Either way, we'll give you a 30-day, money-back guarantee to ensure your complete satisfaction. No facsimiles, please. Send check, money order or Visa/MasterCard information to: Electronic Arts, PaperClip III Upgrade, P.O. Box 7530, San Mateo, CA 94403.



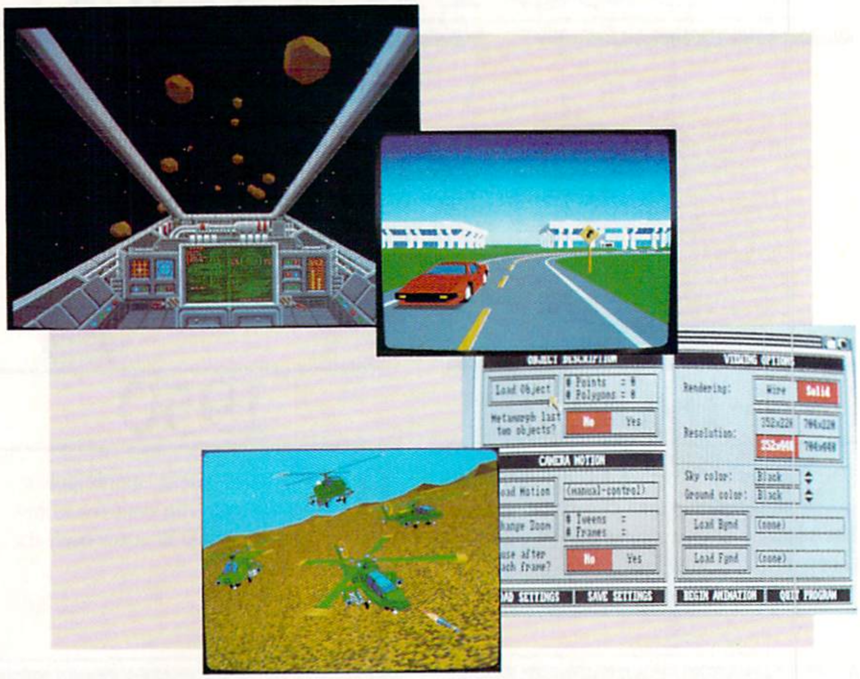
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Reviewed by Bob Lindstrom

# VideoScape 3D

**Computer:** Amiga
**Publisher:** Aegis Development
2210 Wilshire Blvd., Suite 277
Santa Monica, CA 90403
**Price:** $199.95



A fine-print warning on the packaging of Aegis Development's phenomenal *VideoScape 3D* program tells most of the story: "Note: *VideoScape 3D* is a sophisticated script-file-based animation tool designed for producing special video effects. It is intended for the professional or advanced video hobbyist."

Amen.

*VideoScape 3D* (*VS3D*) is one of the first programs to exploit the extraordinary animation abilities of the Amiga. Using *VS3D* in high-resolution graphics modes, Amiga owners can approach the kind of smoothly realistic computer animation that has become so popular in TV commercials, sports broadcasts and some special effects movies.

Visual excellence has its price, though. Getting the most out of *VideoScape* requires an effort comparable to learning a programming language. It will require time, patience and persistence. While experimenting with this amazing but daunting program, a phrase kept ringing through my mind: "Kids, don't try this at home." *VS3D* can generate images previously beyond the reach of a microcomputer, but realizing those results will take the dedication and concentration of a serious computer animator.

The system requirements alone suggest that *VS3D* is not for the new Amiga 500 owner. Although it is possible to play ready-made animations with a 512K RAM machine, the creation of animation files needs a minimum of one megabyte of RAM. Realistically, an effective *VS3D* system should include at least 2.5 megabytes of RAM and a second 3.5-inch disk drive, or better yet, a hard disk drive. The program will recognize a maximum of four megabytes of RAM.

At the center of this package's five modules is Allan Hastings' *VideoScape 3D*, a program to animate and draw objects and locations in three-dimensional modeling. From this control window, *VS3D* animators load objects to be animated, define camera motion (determining the point of view from which the animation will take place), and choose whether objects will be drawn in wire frame outline or solid 3D modeling. The control window also allows you to load IFF-compatible backgrounds (which can be drawn with *Aegis Images*, *DeluxePaint* or any other IFF drawing program) and choose screen resolutions from the 352 X 200 pixel low resolution to a maximum 704 X 440 pixel hi-res overscan display. Of course, the higher the resolution, the more RAM and disk space the final animation will use.

The first-time user can begin by loading a sample object, such as a red Lotus sports car contained on the program disk. Moving to the display screen, you will see the sports car rendered as a wire frame or solid object according to your choice. In Manual Animation mode, you can turn, tilt, lower or raise the car by pressing the keys of the numeric keypad. Each frame of the resulting animation can be saved to disk as an individual IFF-compatible graphics file or the entire animation can be saved in ANIM format, a new IFF file standard created by Aegis for the storage of data-compressed animations.

This kind of introductory exercise reveals two of the merits of *VideoScape 3D*. First, the animations can appear remarkably smooth and lifelike. Second, new frames are rendered at a surprisingly fast rate. For those used to 15-20 minute ray-tracing renderings, *VideoScape* seems to run at a blistering pace, taking a few seconds or several minutes to create an image, the length of time depending on the complexity of the scene. The Manual Animation mode provides almost instant feedback.

Although the manual animation control via numeric keypad can provide pleasingly fast results for beginners, the real power of *VS3D* is accessible only through the creation of script files. Using a standard text editor such as the Amiga's ED command, it is possible to numerically describe the design and location of every object in every frame as well as camera position and the placement of a light source.

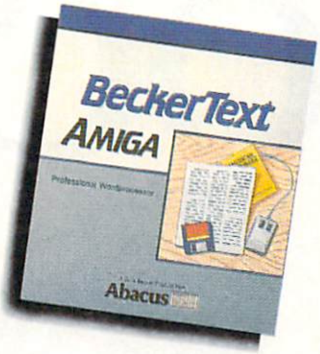
Writing script-based motion files will unlock the flexibility of *VS3D*. It also opens a Pandora's Box of challenges that is beyond the scope of this review. In brief terms: in order to make the most of *VS3D*, you will have to learn to "program" in *VS3D*.

The script-based concept ultimately is the essence of the program, whether you are animating scenes or designing 3D objects. Animations and objects in *VS3D* script files are written by identifying every point of every object according to an X-Y-Z geometric coordinate grid. Starting from a zero point, the user must define every point in an object according to how far

*Continued on page 105*

# Hardworking software for your Amiga

**BeckerText**—More than just a word processor. WYSIWYG formatting. Merge graphics into your documents, automatic table of contents and indexing. Calculations of numeric data. Multi-column printing. Built-in spelling checker checks as you type. $150.00




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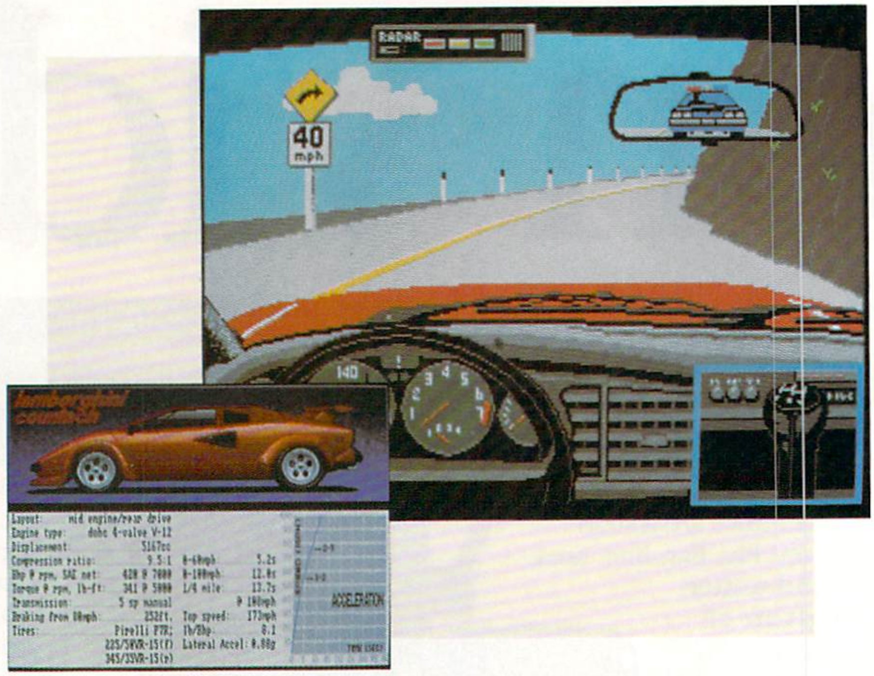
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Award winning in its own right Images is a lot of paint program for a small price. With color cycling, mirrors, air brush, pantograph, gradient fill, over 40

Reviewed by Jeffery Scott Hall

# Test Drive

**Computer:** Amiga
**Publisher:** Accolade
20813 Stevens Creek Blvd.
Cupertino, CA 95014
**Price:** $44.95




Have you ever wondered what it would be like to go into a dealership that specializes in sports cars and test drive the car of your dreams? Well here is your chance! *Test Drive* by Accolade puts you behind the wheel of your favorite sports car. The game starts out with a glamourous title sequence, while a stereo soundtrack plays in the background. To abort the sequence, press the fire button on the joystick, and the game will finish loading. Now comes the hard decision—which car to drive?

## Choosing a Sports Car

The screen is now split in half, showing one of the five sports cars that you may test drive and the specifications of the current car. To cycle through the different cars, press the joystick up or down. This will cause the top portion of the screen to scroll, displaying a different sports car, and the bottom portion to display specifications. The cars from which you may choose are Lamborghini, Ferrari, Porsche, Lotus and Corvette. Each car performs just like in real life, including speed and handling.

You had better bring along your Swiss bank account money, because you're going to need it. For instance, the Lamborghini has a top speed of 173 mph, mid-engine/rear drive handling and a price tag of (gulp) $135,000. While the Corvette has a top speed of 154 mph, front/rear handling and a price of only $35,000. To select your car, press the fire button.

## Seeing What's Ahead

Now that you have selected a sports car, let's take a look at what lies ahead. The object of the game is to drive as fast as you can along a mountain road, while avoiding obstacles such as Sunday drivers, oncoming traffic, pot holes, water slicks and, most of all, the fuzz. Whoops, I almost forgot the little bird that flies over and splats on your windshield (it's not just the car that has real-life performance).

In addition to this, you must keep your car on the road without crashing, which is no simple task. The game ends after you have crashed your car five times or you rear-end an officer of the law. (As a wise man once said, "He who rear-ends a cop, gets his rear ended.")

## Burning Rubber

Now, it is finally time to see what this fancy European or American car has under the hood. It will not be as simple as plying a lead foot, because this is no ordinary highway. The perspective you have is that of a person sitting behind the wheel looking out through the windshield of the car. In the top-middle of the windshield, you have a rearview mirror which is very detailed, showing the cars you have passed and the distance they are behind you.

The mountain route you must drive has a nice perspective to it and makes you feel like you are actually driving on the road. To accelerate push the joystick up, to decelerate push down, and to shift gears, press the fire button while pushing the joystick up or down. It takes a lot of practice to shift gears, because it's not just a matter of shifting, but rather knowing when to shift. When you do shift gears, there is a window that opens in the lower right corner of the dashboard displaying the gearshift and the gear you are currently in. There are also two indicators on the dashboard, one for the current mph and another for rpm. The mph indicator simply displays your current speed, while the rpm indicator tells you how much faster you can go without blowing your engine in the current gear.

The most important device on your car is the radar detector. This device is located in the upper left part of the windshield, attached to your sun visor. When the red lights start flashing on the radar detector, it means that a radar gun has been detected, so slow down. It is safe to speed up when the red lights turn to green.

## The Pit Stop

Once you have completed the stretch of road, your car automatically pulls over into one of four gas stations. Here you are given your average speed, the time it took for you to complete the stretch of road and your total points so far. If your score is too low, the dealership will have called ahead and told the gas station to send you back.

## Winning the Game

If you are successful and do complete the mountain road four times, your car will automatically pull over into the dealership for the surprise of your life. Inside the glove compartment is the title to your car, which the dealership has signed over to you. The game will now prompt you for your name (if your score is high enough) in order to put you in the top drivers hall of fame.

## Comments

One complaint I have is the fact that

*Continued on page 113*

Reviewed by Gary V. Fields

# Terrorpods

**Computer:** Amiga (512K Required)
**Publisher:** Psygnosis, Ltd.
Distributed in the U.S. by:
Computer Software Services
2150 Executive Dr.
Addison, IL 60101
**Price:** $39.95




This one will shock you with realism, lull you with beautiful graphics and frustrate you with its challenge. *Terrorpods'* complexity brings new meaning to the combined label, strategy-arcade.

*Terrorpods* is much more than just another strategy-arcade game—it is a heart-palpitating experience. The game unfolds on a huge, three-dimensional world filled with digitally perfect sound effects, real-time animation and impeccable graphics that complete the illusion of reality. *Terrorpods* is one game that transcends passive phrases or clinical examination. If any game on the market deserves the description of one which could "knock your socks off," *Terrorpods* is it. In a nutshell, this one will shock you with its realism, lull you with beautiful graphics and frustrate you with its challenge.

Here's the story line: What begins as a simple assignment to defend a lazy mining colony in an area of the universe called System Seven, turns nasty when aliens decide they want to take the ore the mines are producing—without paying for it. As the poor devil in charge of the planet's defense, you are torn between defending the mines and factories or defending yourself. Like real war, your task goes beyond simply shooting and dodging. To succeed (or just survive), you must figure out ways to conserve the resources at your disposal, decide which installations are expendable and which you must both defend and rebuild. Plus you must simultaneously trade for material to maintain your own existence (weapons, repairs, defense shields, etc.), battle the attacking pods and discover a way to destroy their mother ship—or perhaps arrange a peace agreement.

*Terrorpods'* complexity brings new meaning to the combined label "strategy-arcade." Although sound strategic planning is necessary to win the game, *Terrorpods* was not cast in the same hexagon-blocked mold of traditional strategy games. Instead, the playing field looks as genuine as the landscape out your kitchen window (providing your window faces the menacing terra firma of some distant planet). Movement is not restricted to turns or blocks—instead the action is nonstop, and your ability to move is restricted only by your physical condition. As far as arcade is concerned, *Terrorpods* is true to those roots—it is fast, challenging and requires every muscle your wrist has ever developed to win. But you cannot win by pounding your fire button alone, nor can you win with only sound strategy. To win you must use both your intelligence and your best reflexes.

During the conflict, you are positioned in a D.S.V. (Defense Strategy Vehicle), which is controlled by both mouse movement and keyboard input. This sensible interface selection allows you, with a minimum of effort, to both master and control the game. For the most part you can control your defenses with the mouse. To move to the right, you move the mouse to the right; to fire a laser, you press the left button, and to rebuild a damaged complex, you press the right button. The mouse also works well handling the fast arcade action (if you prefer, a joystick can be used). But the strategically important commands are input via the keyboard. Warp movements between sectors are selected via the function keys, radio transmissions are accessed by pressing "R," and the screen maps are displayed and stored again via "M." A protective "semi-opaque" protective field can be dropped around the D.S.V. by pressing the space bar.

The advantages of being an accurate, speedy typist become apparent when you need to transmit a coded radio message to any of the colonies, mines or factories around your defensive position. This is done by pressing "R" (for radio) and then entering a four-letter code followed by RETURN. To succeed (the messages are vital to your survival), messages must be transmitted within a limited time span. If successful, you can summon help for your defense from the mines and factories around you or trade your surplus for the defensive supplies you need.

Not only can you move your own D.S.V. around the hostile terrain, but you can also dispatch a surface "drover" (robot) which can move independently and contact or trade with vital installations. The inclusion of such a feature adds to the challenge and fun and to the game's realism. Space exploration has always been dependent upon remote-controlled tools. The importance of this surface drover becomes apparent if the D.S.V. is either damaged or drained of supplies. The drover can retrieve supplies while you concentrate on more threatening situations like incoming missiles, attacking Terrorpods or rebuilding vital installations which the pods have blasted. *Continued on page 108*

Reviewed by Graham Kinsey

# Garrison

**Computer:** Amiga
**Publisher:** Intelligent Memory
**Distributor:** C Ltd
723 E. Skinner
Wichita, KS 67211
**Price:** $49.95


BOB CLARK

When a coin-op arcade game becomes a tremendous success, it usually isn't too long before home computer versions are available. The smarter kids who have home computers would rather invest $40 in a home version than keep wasting quarters in the arcade. As a result, home versions of such megahit coin-op games like *Missile Command*, *Pacman*, *Dig Dug* and *Pole Position* were hot sellers. All those games were popular back in the first half of the 1980's, but what about the latter half of this decade?

Most people would agree that the dominant arcade coin-op game in the past few years has been *Gauntlet.* A coin-op game which can be referred to as the arcade variant of *Dungeons and Dragons*, in addition to having four-player capability (with the ability for new people to jump in at any time during play) has got a lot going for it.

Finally, a home version of *Gauntlet* has come out for the Amiga— perhaps the only computer that can really simulate the coin-op quality of *Gauntlet.* The game is not a licensed version of *Gauntlet.* Rather, the name of this *Gauntlet* imitator is *Garrison*, from the West German company Rainbow Arts.

You will quickly appreciate the digitized sounds that are used in this game while the loading sequence is taking place. When the game is booted, three different graphical information screens are shown, so you will know what most of the monsters, treasures and other objects look like.

Once you hit the space bar, you get to choose which characters you would like to bring into the *Garrison* world. First you will find out that unlike *Gauntlet*, which only has four characters (Wizard, Warrior, Valkyrie and Elf), *Garrison* has five. The new character is the Dwarf. Since you don't get any compensation for bringing in fewer than all five characters, you might as well make all five available for use.

As soon as you have selected the characters you will be using, you may notice that their abilities are now shown. *Garrison* characters have six different attribute ratings: Speed, Hand-to-Hand Combat, Magic Power, Armor, Shot Speed and Shot Power. All attributes have a range of one to five (except for Magic Power and Fire Power, which both have an upper limit of nine). You will also notice that each character starts with 25,000 Health points. Each character gets only one life per game.

Now you must choose one character with which to enter the first level. If you are playing with two players, either can go first. The chosen character appears at the starting point of the first level. The second player can join in with another character, but he cannot use the same character that the other player chose to enter the level with (sorry *Gauntlet II* fans). Note that the second player can join in at any time during the level, unless the first player has exited the level or has died on this level. The only keys used on the keyboard during play are the SHIFT keys (to use scrolls, one for each player), and the space bar will pause the game at any time.

After you have finished a level, both players can switch characters if they like before entering the next level. The first four levels in *Garrison* are always the same; the remaining 124 (that's right, *Garrison* has 128 levels!) appear randomly throughout the rest of the game. Each level has a name, which is shown at the top of the character selection screen before you enter that level. Don't be surprised if you see a certain level appear randomly more than once. In each level most of the objects are fixed, but occasionally you will see a potion or piece of food in a level that usually isn't there.

Of course, the monster generators have a random quality about them, so don't ever expect a constant level of monsters to be present unless the generators have all been destroyed (or if a certain level has no monster generators present, which is true for a few levels). As you move through each level, the monsters become progressively faster, more powerful and harder to kill. The size and current appearance of the Ghost generators can give you a clue as to how powerful the monsters currently are, in addition to the number of the level that you are on.

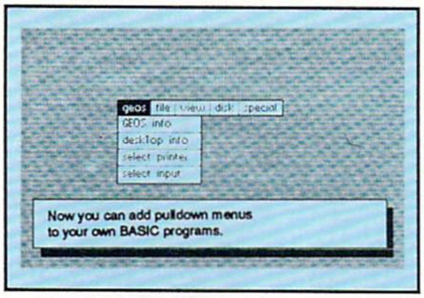
The graphics in *Gauntlet* aren't really incredible, but they are of the quality that should be present in an Amiga arcade game. Those arcade fans who were disappointed with the wire-frame graphics in *StarGlider* (the first good arcade game for the Amiga) will cherish the graphics in *Garrison.* The sound effects are all digitized, so they are also very good.

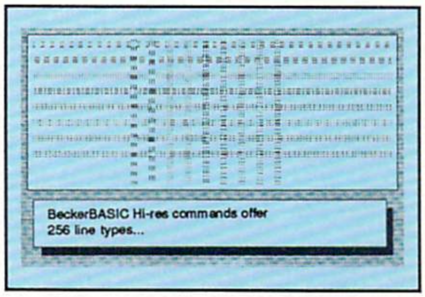
There are a couple of bugs present in *Garrison.* On the Amiga 500 and 2000, the game has been known to freeze up. This very rarely happens, but I have watched a game in progress trashed when the graphics screen turns to a computer

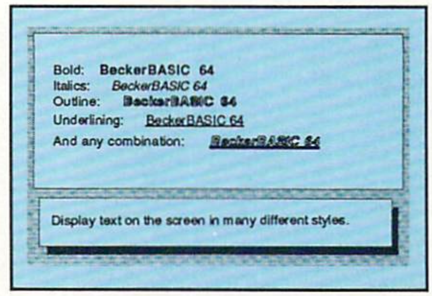
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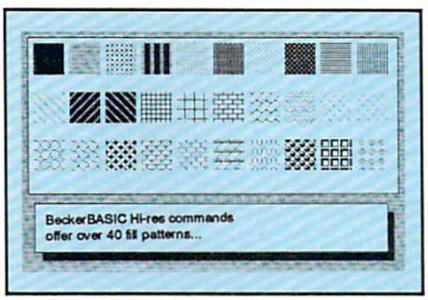
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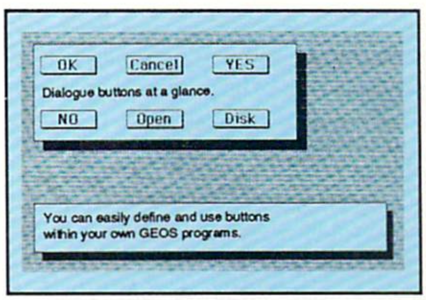
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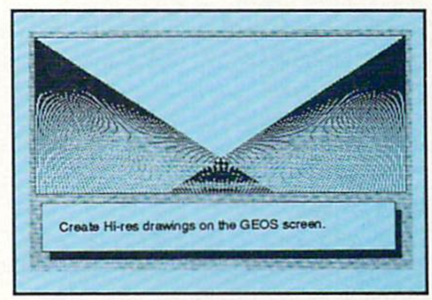
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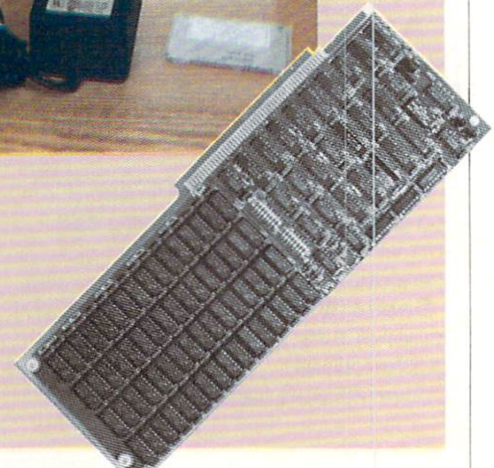
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Reviewed by Tim Jones

# Micron 2MB Memory Expansion

**Computer:** Amiga
**Manufacturer:** Micron Technology, Inc.
Systems Group
2805 E. Columbia
Boise, ID 83706
**Price:** $495 (Amiga 2000)
$550 (Amiga 1000 with chassis & interface)
$665 (Amiga 500 with chassis & interface)



The one thing that makes this product stand out from other similar items is the level of support that Micron supplies.

When taking a look at a piece of hardware for review, quite often I spend as much time getting to know the company as I do the product. If the product is in a field where others have already sown seeds, the three main features to look for are price, performance and support. Since, in general, memory is memory, performance doesn't really weigh as heavily as the other two factors. And when the prices for similar products are relatively equal, the selection boils down to support.

When I was given the chance to look at a new memory expansion unit from Micron Technologies, I became more than just a bit interested. Since I have been involved with the MS-DOS world for quite some time, I was already familiar with the type of products that Micron produced. Also, the fact that a company like Micron would take an interest in the Amiga family piqued my interest even further.

I received the Micron evaluation unit, and I connected it to my Amiga 1000 via an interface chassis. This is a very simple job, as the memory card will only plug into the interface one way. Then, the chassis plugs into the expansion port, or in my case, the pass-through on my hard disk interface. I was very pleasantly surprised when my machine booted successfully on the first try. The Workbench loaded and I was told that I now had *2,484,520 BYTES FREE!* This was after attaching *two* hard drives and *two* floppy drives (in addition to the internal one).

In addition to the hardware, Micron has included a Workbench disk that contains memory testing programs, a utility that disables the FastRAM (which is what memory above 512K is considered on the Amiga) and a recoverable RAMdisk driver that will partition off a section of your FastRAM and set up pointers that allow it to be restored after a warm boot.

As for the memory expansion unit itself, it was originally developed by a company called ASDG and is a very neat package. I have seen many expansion devices for the Amiga and many other computers and find the Micron 2MB RAM board to be one of the best laid-out boards I've ever seen. The board is designed to fit into an Amiga 2000, but Micron has developed interfaces and expansion chassis for the Amiga 500 and 1000.

In the current configuration, the Amiga 1000 expansion chassis is unpowered (except from the bus) and doesn't offer pass through. I didn't find this to be a problem since it was added as the last peripheral on my bus. It could become a problem, however, if you own any other expansion devices that are also dead-end type devices. The Amiga 500 chassis, on the other hand, is fully powered and offers pass-through of the expansion bus. The reason for powering the 500 chassis is that the power supply that comes with the Amiga 500 isn't strong enough to power both the computer and the expansion bus.

The Amiga 500 interface and chassis with pass-through and power supply is available for $170, The Amiga 1000 interface and chassis is available for $55 and the memory unit, including 2MB of RAM, is priced at $495. This pricing keeps the Micron entry into the Amiga community within the price range of Amiga memory expansion units.

The one thing that makes this product stand out from other similar items is the level of support that Micron supplies. Getting back to my opening statements, support is a major factor when dealing with hardware. Micron's sales staff and technical staff are both courteous and intelligent (a combination that isn't always found). If there are problems, the technical staff is there to answer any questions and, if necessary, solve any problems that may have arisen. Since the pricing of the unit keeps it in the running with other 2MB units available, the main factor in deciding on the Micron product is that of support and company reputation. Since Micron has been a leading American manufacturer of memory devices for many years, and since the product comes with a two-year warranty, I feel much more comfortable about purchasing their products.

If you are looking to add external expansion RAM to your Amiga, then I highly recommend the Micron 2MB expansion unit; the price is right and the support and service are excellent. ▣

by Shay Addams

# Three New Directions for Infocom

**News and opinion from a leading explorer of those fantasy realms called adventure games.**

While the competition focuses on outsmarting Infocom's parser, that "Cambridge-by-the-Sea" company has been busily redefining the nature of the text adventure itself. Three of their latest entries—*Nord and Bert Couldn't Make Head or Tail of It, Plundered Hearts* and *Beyond Zork*—open doors into different realms of uncharted territory.

Written by *Ballyhoo* author Jeff O'Neil, *Nord and Bert* replaces object-oriented puzzles with witty word play in a collection of eight mini-stories that may be completed in any order (though you've got to complete the first seven before tackling the final one). By word play I mean puns, spoonerisms, limericks and homonyms. In case your ninth grade English lessons have faded into oblivion, a spoonerism involves transposing words that sound alike: In a room where you see some burning foam and a riddle book, you score a point by typing "riddle while foam burns." Homonyms (words spelled and pronounced alike but with different meanings) are the basis for scoring more points.

While it's refreshing to see something so different from Infocom, I never had so little fun with one of their games. Some people may find it appealing, however, for whether or not you enjoy this kind of humor depends on just how wacked out your own sense of humor happens to be. But if you're looking for logical puzzles, a trip to the Caribbean will prove more rewarding . . . for that's the setting of *Plundered Hearts*, the first Infocom story in which you *must* play the role of a woman. Others either let you choose your own sex or simply didn't address the issue, but this one's plot hinges on your being a woman. That's because Amy Briggs patterned *Hearts* in the style of a woman's romantic novel, one that takes place in the seventeenth century as you sail to the Caribbean to rescue your father from the clutches of a black-hearted pirate.

Women adventurers (or should that be adventuresses?) make up 25% of the Infocom audience, and they'll particularly enjoy being swept up in the arms of a dashing pirate who offers to help. Men will have as much fun, once they get into the story. As QuestBusters' Contributing Editor William E. Carte said, "It bothered me a bit at first—my character being hugged and kissed by a man. After the initial scenes, however, I quickly got lost in the plot, and soon my character's sex honestly didn't matter." The reason this experiment works is that, unlike *Nord and Bert*, *Plundered Hearts* is packed with the kind of logical puzzlers that have kept Infocom gamers racking their brains since the day they first entered *Zork*'s little white house.


SUSAN LIPPMAN

*Beyond Zork* represents a major step in the evolution of the text adventure.

### Beyond Zork—Way Beyond Zork

The title of Infocom's boldest and most successful experiment—*Beyond Zork*—refers to more than just the first official sequel to the *Zork* trilogy (the *Enchanter* series was set in the same game world but never designated a *Zork* sequel by Infocom). For the title also hints that this game, designed by Brian Moriarty, represents a major step in the evolution of the text adventure. In addition to Moriarty's fine prose and subtle puzzles, *Beyond Zork* contains many role-playing elements: character attributes for things such as endurance, strength and intelligence; shops for buying and selling weapons, armor and treasures; and combat with monsters that roam the Southland of Quendor.

You can use pre-set or random characters, or spend 60 points among the attributes to create your own. Initial character stats are important: if intelligence is too low you won't be able to read the scrolls you find along the way. (But you can boost your intelligence by drinking magic potions, so such mistakes in character creation are not necessarily fatal.)

Beginning as a level zero peasant, you set out to recover the Coconut of Quendor, whose magic secrets are the only hope for a land where the Age of Magic is ending and all the Enchanters have disappeared. As in an *Ultima*-style game, you earn experience points by defeating monsters—slay enough of them, and you'll be promoted to level one, and your attributes will be increased.

The character attributes therefore constitute your score, which assumes a new significance because some logic puzzles can't be solved without having attained a high enough score in a particular attribute. This leads to a greater sense of accomplishment in racking up a high score, for your score means more than just a collection of points. Example: in order to climb a stack of crates, your dexterity rating must be high enough—which is accomplished by solving a nearby logical puzzle (whose clue, by the way, is embedded in the accompanying manual, "Lore and Legends of Quendor"). Other role-playing activities, such as mini-quests to perform and earning money, add to the multitude of things to do in *Beyond Zork*.

Befitting such a radical departure from text adventures, Moriarty devised a revolutionary presentation scheme called "enhanced mode." At the outset, a window at the top of the screen describes the current location and one below offers other information and combat reports and provides room to type in commands. By using the priority command you can customize the contents of the top window and have it show your inventory, attribute levels, or room description—you decide which is most important at the time. Purists who prefer the standard Infocom display can revert to it by typing "mode."

A plethora of time-saving features have been implemented to ease the adventuring lifestyle and give you more time to concentrate on the story and puzzles. Ten function keys let you perform common commands such as "look" and "take." One

*Continued on pg. 104*

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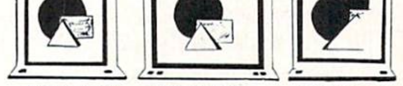
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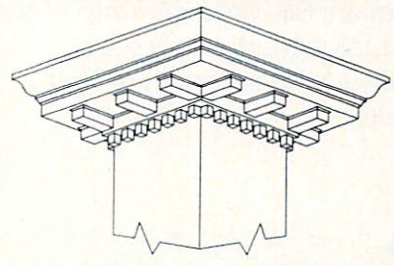
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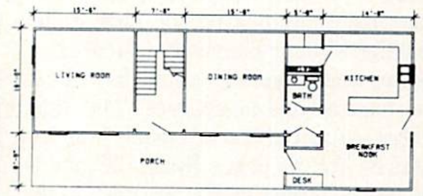
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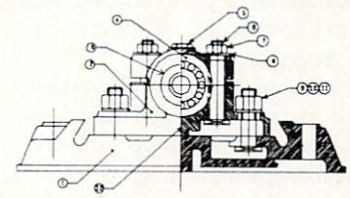
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by Robert W. Baker

# Inside Q-Link

**Explore the inner workings of the Q-Link telecommunication service with network pro Bob Baker.**

Are you still using the Sprint utility for printing out saved E-Mail and message board messages or other sequential files? Did you know that there's a newer utility available that offers numerous features and capabilities? Well, the Ultra sequential text file reader was created by Bob K7 (a.k.a. Sysop BK) and is available in the specially created Q-Link Utilities library along with some other handy programs.

Ultra is a very user friendly package, with all operations selected from menus using the function keys. Operations requiring filenames can accept directly entered names if you already know what you need to do. Otherwise, you can display the disk directory and select a file from those displayed using the cursor and function keys. Everything is very simple to use, and you don't have to remember the exact filename spelling.

Sequential files can be displayed on the screen for quick browsing in either of two formats. If you want printed output, the data can be printed in one of six formats and is echoed to the screen as it is printed. Additionally, existing embedded carriage returns within the text can be optionally ignored to reformat the text to the desired size. Word wrap is provided in all of the output formats to ensure the text is always readable.

Ultra can also read and optionally renamed files that were saved with capital letters in the filename. Files can also be automatically converted from true ASCII to PET ASCII character codes in all output formats. A collection of disk housekeeping functions are also provided from a simple to use menu.

If you're interested in getting a copy of Ultra, it's available online in the special Q-Link Utilities area within the public domain software libraries. When you download Ultra you'll also get a documentation file that can be read using the Ultra program or the original Sprint utility supplied on your Q-Link disk. If needed, a copy of Sprint is also available in the Utilities library.

A number of other handy programs are also available in the Q-Link Utilities library. There's a program for changing the colors used by your Q-Link disk in People Connection and all the other areas of the system. You'll also find various download files like Arc, Lynx and Library, plus music and graphics utilities. In all cases, any of the utilities in the library that contain more than one file will automatically download all of the required files onto your disk.

Another important utility that can be found in this area is the GEOS converter. Presently, Q-Link can only upload and download non-GEOS files. The GEOS Converter utility changes a GEOS file into a standard 64 sequential file which can be uploaded to Q-Link. The same utility can be used to change the file back into a GEOS file after it's downloaded.

Instructions for dowloading, installing and using the GEOS Converter utility are provided with the file in the library. As always, be sure to read the comments available with each file in the download libraries to get operating instructions and any possible notes on problems or fixes. If you want to save a copy for later reference or to get a printed copy, you can always use the F3 screen save feature of Q-Link to save the information when it's displayed.

If you need help with any of the Q-Link Utilities, or anything else concerning your Commodore system for that matter, don't forget the wide variety of information available in the Commodore Community SIGs. The SIGs are constantly evolving, with special features and activities planned from time to time. Be sure to check out the News and Events areas in each of the SIGs every once in a while so you don't miss out on anything.

Most of the SIGs were designed around a common structure that includes the News and Events area mentioned above, message boards and on-line articles, software libraries, library highlights and workshops. Special areas are added from time to time, so be sure to look at the menu before you go off and running to your favorite activity. Each of the SIGs provides background information on each of the Sysops along with a description about that area. Each of the Sysops has his own particular area of expertise or interest. With the wide assortment of people staffing the SIGs, you shouldn't have any trouble getting help with almost any problem that comes up. If you drop by the Byte Bar in the Computer Connection you might even run into some of them online. Here's a quick introduction to the current Sysops online:

In the Computer Connection you'll find Sysop PJ. Peter's primary job is managing the 128 CP/M area, but he's also interested in machine language, C and Turbo Pascal programming. The other lone Sysop is Simon Rich, who manages the Applications area as Sysop SR. The remaining SIGs are staffed by teams of Sysops who help share the load.

The Graphics SIG is run by Paul Hughes, Sysop PH, with help from his twin brother Peter. The twins actually are computer graphics artists and have had quite a few works published in various magazines. Brian Heyboer, Sysop BJH, is also active in the graphics area and specializes in printer graphics and graphics programming.

The Game World SIG is run by Frank McMahon as the infamous "Real Frank" and Sysop FM. Besides his heavy interest in games, Frank is also involved with video and animation on the Amiga. His helper is Roger Frazier, Sysop RF, who oversees the public domain libraries for the Game World.

The Music Room has many helpers with their own interests. Sysop Jon spent seven years as a professional musician and has a degree in Music Education. Sysop SIDs considered a musical career, but decided on a different calling. Now he returns to his musical interests via the Q-Link Music Room. John Davis is Sysop MIDI, and loves to program MIDI sound patches. Daryl Powell is Sysop Keys. With an extensive MIDI setup, he aspires to becoming a computer composer and performer someday.

The Programmers Workshop is manned by Sysop BK, otherwise known as Bob K7, the author of the Ultra utility mentioned earlier. Bob oversees the overall operation of this area besides managing the message boards and software libraries. His helper, Sysop JL, is an electrical engineer with many years of programming experience. John handles the conferences besides supporting Bob when needed.

The Telecommunications SIG is manned by Hayward McKee as Sysop RHM. Hayward conducts the on-line SIG

*Continued on page 54*

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*Continued from page 52*

conferences and oversees the message boards. He also tests the files in the Terminal, Utility, and Text and Info software libraries of the SIG as well. Sysop JC has run eight different BBS programs over the years and now tests the BBS programs available on Q-Link.

Roy Wagner manages the Amiga SIG as Sysop RW and is mainly interested in games, music and graphics. John Youells helps out as Sysop JAY and is interested in utilities, shareware software, plus programming in Forth, C and BASIC. Both admit to not having much time to program these days, but they provide tons of up-to-date Amiga information.

Two other people you'll find within the SIGs are Loren Lovhaug and Len Lindsay. Loren is the founder and managing editor of the *Twin Cities 128* magazine besides running the 128 SIG that's located in the Computer Connection. The 128 SIG has the usual message and information areas, download libraries, plus a special Help Key Conference area, but all dedicated to the 128.

Len Lindsay has been involved with Commodore computers almost as long as I have, both of us going back to the early PET days. Len uses the Captain C id on Q-Link and manages the COMAL Users Group within the Programmers SIG. He's been the major thrust behind bringing the COMAL language into the U.S. from Europe and has four internationally published books about microcomputers.

That should give you an idea of who's doing what and where to get help with problems as they arise. For more information on each of the Sysops, check out their short introductory message in each respective area. Most of the Sysops have been involved with their areas for quite some time now, and new helpers are being added as the need arises.

Don't forget that help is there if you need it, you just have to ask. Try to match your question with the best person and the best place. Messages in the message boards are usually easier to handle, but most of the Sysops are perfectly willing to answer private questions if you contact them via E-Mail. If a Sysop can't help directly, they can usually get you in touch with someone else who can help. The Sysops put in long, hard hours but enjoy what they're doing. They really do enjoy helping others or they wouldn't be there.

That's it for this month. As usual you can always reach me via E-Mail if you have any comments or suggestions for this column. ■

## Nord and Bert

*Continued from page 24*

> If you type MOUSSE while there is a moose standing in the aisle, the creature transforms into the chocolate dessert.

As well as being the first collection of short stories from Infocom, *Nord and Bert* has a lot of other unique features that contribute to its attractiveness for a potential purchaser. These are: an enhanced status line, the ability to use the name of a word to get a full description, and the presence of on-line InvisiClues to help the gamer who is hung up on a particular puzzle.

Until now, when you wanted to look carefully at some object to see all of its characteristics in an Infocom game, you would type EXAMINE BOOK (using a book for an example). Now, you simply have to type BOOK to get the same description. Also, when you wanted to go somewhere in a game before, you would have to give a compass direction. In *Nord and Bert*, there is an enhanced status line at the top of the screen that lists all of the places you can go to as well as your score and your present location.

From an avid gamer's standpoint, these two features make playing *Nord and Bert* much easier so that all of the mental energy can be spent on the word play of the game, a challenge in itself. I only hope that Infocom plans to include these features in future installments to relieve some of the physical actions necessary to play a game so that more time can be dedicated to letting the imagination take control.

The last feature in *Nord and Bert* that is the ultimate help to those people who can't quite think of the right phrase or idiom is the inclusion of on-line InvisiClues on the game disk. For each of their games, Infocom sells InvisiClue Hint Books which contain hints to puzzles. The hints are invisible until they are revealed with a special magic marker that comes with the book. In *Nord and Bert*, by typing HINT you have access to all the hints that pertain to the short story that you are playing. The HINTS OFF command turns the hints option off for the duration of that session. These on-line hints work extremely well and are already planned for future games.

O'Neill explained his thought process behind *Nord and Bert*: "Infocom would like to attract new fans as well as making the old ones happy. I tried to fulfill this goal by taking the tedium out of the game (mapping, etc.) and making the game more approachable for people. *Nord and Bert* was a backwards design in that I started with the player input and word play, designed the geography around that and then tied the geography into the idea of Punster. *Nord and Bert* is an intermediate member of Infocom's 'plus' games—those that allow more control over user-friendliness and interfacing with the computers than others. We were concerned that people might become 'hint junkies.' *Nord and Bert* is a 'plus' game in that it has the option to turn the hints off. I had the player in mind."

All Infocom games have some neat thing as an insert in the package that either helps with the game, acts as a copy protection scheme or adds to the atmosphere. The original collection of wacky cartoons contributed by Kevin Pope acts as an example of the craziness found on the disk in Punster. Pope was chosen after O'Neill was shown some of his work by a co-worker and "decided that the mood of his book, *The Day Gravity Was Turned Off in Topeka*, fit into the wacky, cartoonish genre of *Nord and Bert*. We called him up and he was very anxious to do the artwork for the game." One of Pope's cartoons also gives *Nord and Bert* its title and appears on the cover of the game.

As a last aid to help those stuck in *Nord and Bert*, I'll explain the goal of two more of the stories. If I told anything more, it would take the fun out of the game. In "The Manor of Speaking," you must return the house in question to its normal state by getting rid of the spirits inhabiting each room. In "Act the Part," you must perform 50's-style humor on a stage. In both cases, you have to decide how to meet your goals—I can't tell you.

*Nord and Bert* more than met my expectations for the game. It combines the right level of difficulty with a variety of options and word play to keep you from being bored. The ability to move from story to story without finishing them is a plus and helps to keep your attention that much longer. The humor involved is appropriate and little innuendos make it effective. When I'm reading the prose to a text game and see the response "The girl takes a whiff of the can of peas and scowls at it. 'Yukko. Gag me with a spoonerism,' " I can only support the source of that response. ■

by Jeff Babuschak

# One for One

## *for the Commodore 64*


ART BAXTER

For those of you who are familiar with the card game Uno, but can hardly ever find someone to play the game with—this program is for you. You can play One for One with your Commodore computer.

The object of the game is to rid yourself of all your cards before your opponent (in this case your computer) does. Be warned, the computer will not be an easy adversary to defeat. Both players begin with seven cards each. As stated before, it is your duty to get rid of these cards before the computer can.

### How to Play

Printed at the top of the screen are two piles of cards. One pile is labelled "Stack," and the other is labelled "Card In Play." You continue the game by drawing cards from the stack and discarding on the Card In Play pile. You may lay down cards that match in color, number or word, or match any card with a Wild card. Try to lay down more than one card each turn. To select a card for discard use the cursor keys—up/down keys will move up or down among rows of cards, and left/right keys move the cursor horizontally across the screen.

If you cannot play a card (the computer will tell you this), then you must draw a card. All of the card drawing is automated for faster action. Play is then shifted to the computer, and the game continues until someone discards all of his cards. When the computer has only one card left in its hand, it will print the message "THE COMPUTER HAS ONE CARD" on your screen.

### The Cards

There are two of every card in each color, except for the zero card. There is only one zero card of each color. There are also four Wild cards and four Wild Draw Four cards.

The following is a summary of each card's function:

- **Draw Two Cards:** When this card is played, the other player must draw two cards and forfeit his turn. It is possible to match a Draw Two card with another Draw Two card to make the other player draw two cards.

- **Reverse/Skip Cards:** The playing of either of these two cards results in the forfeit of the other player's turn and allows the original player of the card to lay down another card.

- **Wild Cards:** Wild cards may be played on any color. They enable the player to change the color of play but *do not* make the other player forfeit his turn.

- **Wild Draw Four Cards:** The playing of this card may change the outcome of the game. When these cards are played, they make the other player draw four cards and forfeit his turn. They also enable the user to change the color of play (if desired) to a different color. This card should be used sparingly, because it is the most powerful card in the stack. If used correctly, it may stop the computer from winning or enable you to win. (Note: you can only use a Draw Four Wild card when you have no color in your hand that matches the color of the card in play.) Also note that you *may* have a card in your hand that matches the number or word card that is in play and still use a Draw Four Wild card. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

**One for One**

```
10 POKE 53280,0:POKE 53281,0
   :PRINT"[CLEAR,WHITE]":CLR'ERCD
20 S=54272:FOR L=0 TO 24:POKE S+L,3
   :NEXT L'HSYG
30 DIM PC(30),PC$(30),CC(30),CC$(30),
   PT(30),CT(30)'BSDI
40 TA=14:CO=1:GOSUB 930'DMOE
50 PRINT"[UP7]"TAB(TA+2)"[RVS]
   O N E"'DELJ
60 PRINT"[DOWN]"TAB(TA+3)"[RVS]
   FOR"'DECF
70 PRINT"[DOWN]"TAB(TA+3)"[RVS]ONE
   [RVOFF,DOWN3]"'DEOH
80 FOR A=1 TO 40:PRINT"[YELLOW,SHFT *]
   ";:NEXT A:PRINT'GJJK
90 PRINT"[RIGHT,UP,GREEN]
   CREATED AND DESIGNED BY
   :[RED]JEFF BABUSCHAK"'BAPQ
100 FOR A=1 TO 40:PRINT"[YELLOW,
    SHFT *]";:NEXT A:PRINT'GJJB
110 PRINT TAB(6)"[BLUE]PRESS THE [RVS]
    SPACEBAR[RVOFF] TO BEGIN"
    :OPEN 1,0'DGTH
120 GET A$:IF A$=""THEN 120'EICB
130 IF A$=" "THEN 150'DFEA
140 GOTO 120'BDCA
150 PRINT"[CLEAR,YELLOW]
    "TAB(8)"STACK"TAB(21)"CARD IN
    PLAY"'DFUI
160 CN=1:NC=1:TA=6:CO=1:GOSUB 930'FTJI
170 PRINT"[UP7]"TAB(TA+2)"[RVS]
    O N E"'DELK
180 PRINT"[DOWN]"TAB(TA+3)"[RVS]
    FOR"'DECG
190 PRINT"[DOWN]"TAB(TA+3)"[RVS]ONE
    [RVOFF]"'DENI
200 PRINT:PRINT'CBHW
210 FOR A=1 TO 39:PRINT"[BLUE,SHFT *]
    ";:NEXT A:PRINT'GJOD
220 REM *** MAIN ROUTINE ***'BRNC
230 PRINT"[HOME]":TA=23:C=1:GOSUB 370
    :IF PC(1)>9 THEN 230'HWHI
240 CO=PT(1):CC=CO:GOSUB 930:NC=1
    :CP=PC(1)'FDTK
250 PRINT"[DOWN,RIGHT6,RVS,WHITE]
    ONE MOMENT - SHUFFLING CARDS[UP]
```

*Continued on page 58*

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Continued from page 56

```
1040 PRINT TAB(TA)"[SHFT J,SHFT *7,
     SHFT K]"'CDPF
1050 RETURN'BAQX
1060 REM *** ASSIGN VALUES ***'BSGE
1070 FOR A=1 TO NC'DERC
1080 IF PC(A)=>0 AND PC(A)<=9 THEN
     PC$(A)=RIGHT$(STR$(PC(A)),
     1)+" "'LEJO
1090 IF PT(A)=10 THEN PT(A)=6'ENCH
1100 IF PT(A)=11 THEN PT(A)=5'ENCY
1110 IF PT(A)=12 THEN PT(A)=2'ENAA
1120 IF PT(A)=13 THEN PT(A)=7'ENGB
1130 IF PC(A)=10 THEN PC$(A)="D2"'ENUC
1140 IF PC(A)=11 THEN PC$(A)="RE"'ENED
1150 IF PC(A)=12 THEN PC$(A)="SK"'ENHF
1160 IF PC(A)=13 THEN PC$(A)="WI"
     :PT(A)=12'FVRI
1170 IF PC(A)=14 THEN PC$(A)="W4"
     :PT(A)=12'FVWJ
1180 NEXT A:RETURN'CCND
1190 FOR A=1 TO CN:IF CC(A)=>0 AND
     CC(A)<=9 THEN CC$(A)=RIGHT$(STR$
     (CC(A)),1)+" "'OJCT
1200 IF CT(A)=10 THEN CT(A)=6'ENBA
1210 IF CT(A)=11 THEN CT(A)=5'ENBB
1220 IF CT(A)=12 THEN CT(A)=2'ENYC
1230 IF CT(A)=13 THEN CT(A)=7'ENFD
1240 IF CC(A)=10 THEN CC$(A)="D2"'ENTE
1250 IF CC(A)=11 THEN CC$(A)="RE"'ENDF
1260 IF CC(A)=12 THEN CC$(A)="SK"'ENLG
1270 IF CC(A)=13 THEN CC$(A)="WI"
     :CT(A)=12'FVDK
1280 IF CC(A)=14 THEN CC$(A)="W4"
     :CT(A)=12'FVIL
1290 NEXT A:RETURN'CCNF
1300 REM *** PLAYER'S ROUTINE ***'BVWB
1310 PRINT"[UP,RVS,WHITE]
     "TAB(7)"PUT CURSOR ON CARD TO
     OMIT[RVOFF]":LO=1545:C=1'EMWK
1320 UC=PEEK(LO):POKE LO,160
     :FOR T=1 TO 100:NEXT T'HVSH
1330 POKE LO,UC:FOR T=1 TO 100
     :NEXT T'FNTF
1340 GET K$:IF K$=""THEN 1320'EJXE
1350 IF K$="[UP]"AND LO>1585 THEN
     POKE LO,UC:LO=LO-80:C=C-11
     :GOTO 1320'LFEP
1360 IF K$="[DOWN]"AND
     PEEK(LO+80)<>160 THEN POKE LO,UC
     :LO=LO+80:C=C+11:GOTO 1320'OIES
1370 IF K$="[LEFT]"AND PEEK(LO-3)<>32
     THEN POKE LO,UC:LO=LO-3:C=C-1
     :GOTO 1320'OEST
1380 IF K$="[RIGHT]"AND
     PEEK(LO+3)<>160 THEN POKE LO,UC
     :LO=LO+3:C=C+1:GOTO 1320'OFLU
1390 IF K$=CHR$(13)THEN 1410'EKXJ
1400 GOTO 1320'BEDX
1410 IF PT(C)=CC OR PC(C)=CP OR
     PC(C)=13 OR PC(C)=14 THEN TA=23
     :CC=PT(C):CP=PC(C)'MXXR
1420 IF PT(C)=CC OR PC(C)=CP OR
     PC(C)=13 OR PC(C)=14 THEN PRINT"
     [HOME]":GOTO 1450'LIJN
1430 PRINT"[UP,RVS,WHITE]
     "TAB(6)"THAT CARD CAN NOT BE
     LAID DOWN[RVOFF]":FOR T=1 TO 500
     :NEXT T'GKIO
1440 GOSUB 2100:GOTO 1310'CJPD
1450 CO=CC:GOSUB 930'CITF
1460 IF PC(C)=13 OR PC(C)=14 THEN
     GOSUB 2100:GOSUB 3100'HXFM
1470 IF PC(C)<>13 AND PC(C)<>14 THEN
     1530'HSLM
1480 INPUT#1,C$:IF C$="BLUE"THEN CC=6
     :CO=CC:CP=PC(C):TA=23
     :PRINT"[HOME]":GOSUB 930'KINU
1490 IF C$="GREEN"THEN CC=5:CO=CC
     :TA=23:CP=PC(C):PRINT"[HOME]"
     :GOSUB 930'JDHU
1500 IF C$="RED"THEN CC=2:CO=CC:TA=23
     :CP=PC(C):PRINT"[HOME]"
     :GOSUB 930'JDHL
1510 IF C$="YELLOW"THEN CC=7:CP=PC(C)
     :TA=23:PRINT"[HOME]":CO=CC
     :GOSUB 930'JDQN
1520 IF C$<>"BLUE"AND C$<>"GREEN"AND
     C$<>"YELLOW"AND C$<>"RED"THEN
     GOSUB 3200'OMFR
1530 IF PC(C)=14 THEN GOSUB 3300'ELTF
1540 IF PC(C)=14 THEN FOR X=1 TO 4
     :CN=CN+1:GOSUB 630:NEXT X'KWVN
1550 IF PC(C)=10 THEN GOSUB 3400'ELQH
1560 IF PC(C)=10 THEN CN=CN+1
     :GOSUB 630:CN=CN+1:GOSUB 630'JBUP
1570 IF PC(C)=10 OR PC(C)=11 OR
     PC(C)=12 OR PC(C)=14 THEN
     PL=1'KGAS
1580 FOR A=C TO NC:PC(A)=PC(A+1)
     :PT(A)=PT(A+1):NEXT A:NC=NC-1
     :GOSUB 1060'LQOW
1590 IF NC=0 OR CN=0 THEN 2210'FKPM
1600 GOSUB 2130:GOSUB 2100'CJUB
1610 IF PL=1 THEN PL=0:C=1
     :GOTO 290'GNLG
1620 GOSUB 2160'BEKC
1630 REM *** COMPUTER'S ROUTINE
     ***'BXDI
1640 IF CP=>0 AND CP<10 AND CR=1 THEN
     290'INLL
1650 IF CP=13 AND CR=1 THEN 290'FKGJ
1660 GOSUB 1190:GOSUB 2100'CJAH
1665 D2=0:WI=0:W4=0:T2=0:CL=0:SC=0:B=0
     :G=0:R=0:Y=0:CR=1:GC=0'MSGD
1670 PRINT TAB(8)"[RVS,UP,WHITE]
     IT IS THE COMPUTER'S TURN[RVOFF]
     "'CCKP
1675 FOR T=1 TO 1000:NEXT T
     :GOSUB 2100'FNHQ
1680 IF CN=1 THEN PRINT TAB(9)"[RVS,
     UP,WHITE]THE COMPUTER HAS ONE
     [RVOFF]":GOSUB 3500'GKQT
1690 FOR A=1 TO CN:IF CC(A)=10 AND
     CT(A)=CC OR CC(A)=CP THEN
     D2=A'LEVV
1700 IF CC(A)=13 THEN WI=A'EKRE
1710 IF CC(A)=14 THEN W4=A'EKWF
1720 IF CC(A)=11 AND CT(A)=CC THEN
     T2=A'GRFJ
1730 IF CC(A)=12 AND CT(A)=CC THEN
     T2=A'GRGK
```

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*Continued from page 58*

```
    "'BANK
260 FOR ZZ=1 TO 7:NC=ZZ:CN=ZZ
    :GOSUB 370:NC=ZZ:CN=ZZ:GOSUB 630
    :GOSUB 2310:NEXT ZZ'LPQT
270 GOSUB 2100'BEEE
280 PRINT TAB(13)"[UP,RVS,WHITE]
    DEALING CARDS[RVOFF]"'CDUK
290 IF CN=1 THEN PRINT TAB(9)"[RVS,UP,
    WHITE]THE COMPUTER HAS ONE[RVOFF]"
    :GOSUB 3000'GKLR
300 CR=0:IF CN=0 OR NC=0 THEN
    2210'GOLE
310 GOSUB 1060:GOSUB 2160'CJCA
320 GOSUB 2100'BEEA
330 FOR A=1 TO NC:IF PT(A)=CC OR
    PC(A)=13 OR PC(A)=14 OR PC(A)=CP
    THEN 1300'MMEQ
340 NEXT A'BBTB
350 PRINT TAB(12)"[UP,RVS,WHITE]
    YOU MUST DRAW A CARD[RVOFF]"
    :FOR T=1 TO 1000:NEXT T
    :GOSUB 2100'HRIQ
360 NC=NC+1:GOSUB 370:GOSUB 2160
    :GOTO 1630'FTTK
370 REM *** PLAYER GET CARD ***'BTGJ
380 DU=0:PC(NC)=INT(0+RND(1)*15)
    :PT(NC)=INT(10+RND(1)*4)
    :GOSUB 1060'MNGV
390 IF PC(NC)=0 THEN 430'DKGK
400 IF PC(NC)=13 OR PC(NC)=14 THEN
    PT(NC)=12:GOTO 570'HDRI
410 GOTO 490'BDMA
420 REM *** CHECK # OF ZERO CARDS
    ***'BXCG
430 FOR A=1 TO NC:IF PC(A)=PC(NC)AND
    PT(A)=PT(NC)THEN DU=DU+1'KHJP
440 IF PC(A)=CC(NC)AND
    PT(A)=CT(NC)THEN DU=DU+1'HCNN
450 IF PC(A)=CC THEN DU=DU+1'FMCJ
460 NEXT A'BBTE
470 IF DU>1 THEN 380'DGVI
480 GOTO 890'BDQH
490 REM *** CHECK # OF REG. CARDS
    ***'BXAN
500 FOR A=1 TO NC:IF PC(A)=PC(NC)AND
    PT(A)=PT(NC)THEN DU=DU+1'KHJN
510 IF PC(A)=CC(NC)AND
    PT(A)=CT(NC)THEN DU=DU+1'HCNL
520 IF PC(A)=CC THEN DU=DU+1'FMCH
530 NEXT A'BBTC
540 IF DU>2 THEN 380'DGWG
550 GOTO 890'BDQF
560 REM *** CHECK # OF WILD CARDS
    ***'BXLL
570 FOR A=1 TO NC:IF PC(A)=PC(NC)AND
    PT(A)=PT(NC)THEN DU=DU+1'KHJU
580 IF PC(A)=CC(NC)AND
    PT(A)=CT(NC)THEN DU=DU+1'HCNS
590 IF PC(A)=CC THEN DU=DU+1'FMCO
600 NEXT A'BBTA
610 IF DU>4 THEN 380'DGYE
620 GOTO 890'BDQD
630 REM *** COMPUTER GET CARD ***'BVSI
640 DU=0:CC(CN)=INT(0+RND(1)*15)
    :CT(CN)=INT(10+RND(1)*4)
    :GOSUB 1190'MNJU
650 IF CC(CN)=0 THEN 690'DKBJ
660 IF CC(CN)=13 OR CC(CN)=14 THEN
    CT(CN)=12:GOTO 830'HDCQ
670 GOTO 750'BDLI
680 REM *** CHECK # OF ZERO CARDS
    ***'BXCO
690 FOR A=1 TO CN:IF CC(A)=PC(CN)AND
    CT(A)=PT(CN)THEN DU=DU+1'KHIX
700 IF CC(A)=CC(CN)AND
    CT(A)=CT(CN)THEN DU=DU+1'HCMM
710 IF CC(A)=CC THEN DU=DU+1'FMOI
720 NEXT A'BBTD
730 IF DU>1 THEN 640'DGUH
740 GOTO 910'BDJG
750 REM *** CHECK # OF REG. CARDS
    ***'BXAM
760 FOR A=1 TO CN:IF CC(A)=CC(CN)AND
    CT(A)=CT(CN)THEN DU=DU+1'KHHV
770 IF CC(A)=PC(CN)AND
    CT(A)=PT(CN)THEN DU=DU+1'HCNT
780 IF CC(A)=CC THEN DU=DU+1'FMOP
790 NEXT A'BBTK
800 IF DU>2 THEN 640'DGVF
810 GOTO 910'BDJE
820 REM *** CHECK # OF WILD CARDS
    ***'BXLK
830 FOR A=1 TO CN:IF CC(A)=CC(CN)AND
    CT(A)=CT(CN)THEN DU=DU+1'KHHT
840 IF CC(A)=PC(CN)AND
    CT(A)=PT(CN)THEN DU=DU+1'HCNR
850 IF CC(A)=CC THEN DU=DU+1'FMON
860 NEXT A'BBTI
870 IF DU>4 THEN 640'DGXM
880 GOTO 910'BDJL
890 REM *** ASSIGN PLAYER ***'BSDQ
900 DU=0:GOSUB 1060:RETURN'DJIG
910 REM *** ASSIGN COMPUTER ***'BUPJ
920 DU=0:GOSUB 1190:RETURN'DJMI
930 REM *** DRAW CARD ***'BOKJ
940 POKE 646,CO:PC$(0)="[RVS,
    SHFT POUND] "'CNTL
950 PRINT TAB(TA)"[SHFT U,SHFT *7,
    SHFT I]"'CDYQ
960 IF CR<>1 THEN PRINT TAB(TA)"
    [SHFT -,RVS]";MID$(PC$(C),1,3)"
    [SPACE3,CMDR *,RVOFF] [SHFT -]
    "'HTPV
970 IF CR=1 THEN PRINT TAB(TA)"
    [SHFT -,RVS]";MID$(CC$(C),1,3)"
    [SPACE3,CMDR *,RVOFF] [SHFT -]
    "'GTFV
980 PRINT TAB(TA)"[SHFT -,RVS,SPACE6,
    CMDR *,RVOFF,SHFT -]"'CDAQ
990 PRINT TAB(TA)"[SHFT -,RVS,SPACE7,
    RVOFF,SHFT -]"'CDIR
1000 PRINT TAB(TA)"[SHFT -,RVS,SPACE7,
     RVOFF,SHFT -]"'CDIX
1010 PRINT TAB(TA)"[SHFT -,RVS,SPACE7,
     RVOFF,SHFT -]"'CDIY
1020 PRINT TAB(TA)"[SHFT -,CMDR *,RVS,
     SPACE6,RVOFF,SHFT -]"'CDAA
1030 PRINT TAB(TA)"[SHFT -] [CMDR *,
     RVS,SPACE4,RVOFF,SHFT POUND,
     SHFT -]"'CDHC
```

*Continued on page 62*

*Continued from page 60*

```
1740 IF CC(A)=11 AND CC(A)=CP THEN
     T2=A'GRBL
1750 IF CC(A)=12 AND CC(A)=CP THEN
     T2=A'GRCM
1760 IF CC(A)=CP OR CT(A)=CC THEN
     CL=A'GRIO
1770 IF CT(A)=CC THEN SC=A'EKCM
1780 IF CT(A)=6 THEN B=B+1'FJIN
1790 IF CT(A)=5 THEN G=G+1'FJRO
1800 IF CT(A)=2 THEN R=R+1'FJLG
1810 IF CT(A)=7 THEN Y=Y+1'FJFH
1820 NEXT A'BBTD
1830 IF B=>G AND B=>R AND B=>Y THEN
     GC=6'LJBN
1840 IF G=>B AND G=>R AND G=>Y THEN
     GC=5'LJKO
1850 IF R=>B AND R=>G AND R=>Y THEN
     GC=2'LJEP
1860 IF Y=>B AND Y=>G AND Y=>R THEN
     GC=7'LJSR
1870 IF T2<>0 THEN A=T2:GOSUB 1960
     :GOTO 1630'HQHP
1880 IF W4<>0 AND SC=0 AND NC<3 THEN
     A=W4:CT(A)=GC:GOSUB 1960
     :GOTO 1630'MFWX
1890 IF D2<>0 THEN A=D2:GOSUB 1960
     :GOTO 1630'HQAR
1900 IF CL<>0 AND NC<>1 THEN A=CL
     :GOSUB 1960:GOTO 290'KSKM
1910 IF WI<>0 THEN A=WI:CT(A)=GC
     :GOSUB 1960:GOTO 290'IXPN
1920 IF W4<>0 AND SC=0 THEN A=W4
     :CT(A)=GC:GOSUB 1960
     :GOTO 1630'KCJQ
1930 IF CL<>0 THEN A=CL:GOSUB 1960
     :GOTO 290'HPDM
1940 PRINT TAB(6)"[RVS,WHITE,UP]
     THE COMPUTER MUST DRAW A CARD"
     :FOR T=1 TO 500:NEXT T'GKNU
1950 CN=CN+1:GOSUB 630:GOSUB 2100
     :GOSUB 1190:GOTO 290'GXLP
1960 REM *** COM. LAY DOWN CARD
     **'BUPN
1970 IF CT(A)=12 THEN CT(A)=GC'EOMO
1980 CO=CT(A):CP=CC(A):CC=CO:CN=CN-1
     :C=A:TA=23:PRINT"[HOME]":CR=1
     :GOSUB 930'KSQC
1990 IF CC(A)=14 THEN PRINT TAB(8)"
     [RVS,WHITE,DOWN]YOU MUST DRAW
     FOUR CARDS[RVOFF]"
     :GOSUB 3600'GOYY
2000 IF CC(A)=10 THEN PRINT TAB(8)"
     [RVS,WHITE,DOWN]YOU MUST DRAW
     TWO CARDS[RVOFF]":GOSUB 3600'GODH
2010 FF=A'BDBV
2020 IF CC(A)=14 THEN FOR X=1 TO 4
     :NC=NC+1:GOSUB 370:NEXT X
     :GOSUB 1060:GOSUB 2160'MHMK
2030 A=FF'BDBX
2040 IF CC(A)=10 THEN FOR X=1 TO 2
     :NC=NC+1:GOSUB 370:NEXT X
     :GOSUB 1060:GOSUB 2160'MHGM
2050 A=FF'BDBA
2060 FOR Z=A TO CN:CC(Z)=CC(Z+1)
     :CT(Z)=CT(Z+1):NEXT Z
     :GOSUB 1190'JKFO
2070 GOSUB 2100:A=FF'CIJE
2080 IF CN=0 OR NC=0 THEN 2210'FKPH
2090 RETURN'BAQD
2100 REM *** CLEAR STATUS LINE
     ***'BVDA
2110 PRINT"[HOME,DOWN10]"
     :FOR X=1 TO 39:PRINT" ";:NEXT X
     :PRINT'HKMD
2120 RETURN'BAQW
2130 REM *** CLEAR SCREEN BOTTOM
     ***'BXJE
2140 FOR A=1503 TO 1984:POKE A,32
     :NEXT A:PRINT"[UP]"'GRMG
2150 RETURN'BAQA
2160 REM *** DEAL CARDS ***'BPOF
2170 CR=0:TA=-3:FOR A=1 TO NC:C=A
     :TA=TA+3:CO=PT(A):GOSUB 930
     :PRINT"[UP10]"'MJJX
2180 IF TA=>28 THEN PRINT"[DOWN]"
     :TA=-3'HIGJ
2190 NEXT A'BBTE
2200 RETURN'BAQV
2210 REM *** PLAYER WINS ***'BQCB
2220 GOSUB 2100:GOSUB 2130'CJUA
2230 FOR A=1 TO 15'DEYB
2240 POKE 646,A'BFNB
2250 IF NC=0 THEN PRINT"[HOME,DOWN11]
     "TAB(3)"CONGRATULATIONS-YOU WON
     !!!"'FFTN
2260 IF CN=0 THEN PRINT TAB(5)"[HOME,
     DOWN11]"TAB(6)"SORRY-THE
     COMPUTER WINS"'GHRO
2270 FOR T=1 TO 200:NEXT T'EHDG
2280 PRINT"[HOME,DOWN13]"TAB(7)"[RVS,
     YELLOW]PRESS ANY KEY TO PLAY
     AGAIN[RVOFF]"'CCDP
2290 GET A$:IF A$=""THEN NEXT A
     :GOTO 2230'GLNK
2300 RUN'BAMW
2310 REM *** SHUFFLING SOUND ***'BUKD
2320 POKE S,45:POKE S+1,33:POKE S+5,49
     :POKE S+22,1:POKE S+23,1
     :POKE S+24,79'LKEN
2330 FOR N=1 TO 30:POKE S+4,129'FLFF
2340 FOR T=1 TO 1:NEXT T:POKE S+4,128
     :FOR T=1 TO 1:NEXT T:NEXT N
     :POKE S+24,0'NBOO
2350 RETURN'BAQC
3000 FOR T=1 TO 1500:NEXT T:GOSUB 2100
     :RETURN'GOGB
3100 PRINT TAB(6)"[UP,WHITE]
     CHANGE COLOR TO WHAT?";
     :RETURN'DEAE
3200 GOSUB 2100:GOTO 1460:RETURN'DKPA
3300 GOSUB 2100:PRINT TAB(4)"[UP,RVS,
     WHITE]THE COMPUTER IS DRAWING
     FOUR CARDS[RVOFF]":RETURN'EIHM
3400 GOSUB 2100:PRINT TAB(5)"[UP,RVS,
     WHITE]THE COMPUTER IS DRAWING
     TWO CARDS[RVOFF]":RETURN'EIQN
3500 FOR T=1 TO 1500:NEXT T:GOSUB 2100
     :RETURN'GOGG
3600 FOR T=1 TO 500:NEXT T:RETURN'FIAF
3700 FOR T=1 TO 500:NEXT T:RETURN'FIAG
```

END

*Continued from pg. 20*

ter on the trip from hall to home. The principles of the game have been kept simple, so that a newcomer could sit down and start playing in a matter of minutes. But enough variations, nuances and surprises have been incorporated to give the contest considerable depth, allowing the users to approach the game from a number of different strategic angles.

For example, with the first misguided toss along your route, you're apt to discover one of the many additional applications of your paper projectiles. Send a *Sun* crashing through a non-subscriber's window, and the dirty deed will be rewarded with a generous supply of bonus points. Who said crime doesn't pay? But you can't afford to be too careless, for if you happen to hit a paying customer's pane, the damage will be deducted from your score. If you're feeling especially destructive, other assorted fixtures, like lamp posts, bushes and garbage pails can also become the object of this peculiar vandalism. Just remember to keep an eye on your paper count. If you're on a mean streak, the eight editions that you're allotted at the start of play will disappear in the first half block. Additional *Sun* bundles can be found along the way, but they usually require the rider to maneuver across some dangerous terrain before they can be claimed. Will you play it safe and concentrate on keeping the customer satisfied, or will you treat the unsuspecting neighborhood like a shooting gallery? The choice is yours.

The one element of this package that might be a bit disappointing to some is the documentation, or lack thereof. One paragraph and one diagram are all that's been provided to prep you for your paper peddling, leaving a whole lot to be discovered by trial and error. In reality, this is what we've all come to expect from arcade contests. But if you're the type who likes to know exactly what he's up against before taking to the road, then you may be forced to first pick up the particulars as a spectator. No problem there. With this contest's stunning graphics and smooth animation, simply watching can be enjoyable enough.

With the unveiling of this contest, coupled with the release of *Gauntlet*, another coin-op classic, Mindscape is obviously trying to build a reputation as a major supplier of arcade action. If this package is any indication of what's in store, then that's good news for all of us. If you liked the sights, sound and play of its predecessor, you're in for a treat. This *Paperboy* delivers it right to your home. ▣

## Tired Tips: Becoming a News Worthy Spokes Man

Tips are usually the bread and butter of a paperboy's existence, so I've listed a few that might help you to steer your way through those training-wheel days in your new neighborhood. Here's hoping you survive until collection day.

- If you study the play field carefully, you will note that the diagonally scrolling design of the neighborhood severely limits the area in which your biker can travel. Trying to ride the blacktop at the screen's bottom right-hand corner for any extended period of time is actually tantamount to cyclist's suicide, since the restricting perspective really leaves you no way of knowing what obstacles are approaching. So, whenever a driveway appears, use it to move up onto the sidewalk on the left. Even if it is occasionally cluttered, this path provides twice the visibility of the parallel roadway, affording you plenty of time to plan your maneuvers without having to rely solely on reflex reactions.
- Many of the moving obstacles along your route are biker activated, in that they wait for your surrogate to reach a certain point on the street before they go into motion. Sometimes the best way to avoid these types of hazards is to exercise patience. If you stand on your brakes and move forward at a snail's pace, the mobile danger, anticipating your speed to be a lot faster, will often cut across your path long before it could pose any problem.
- Goodbye doesn't mean forever. One important strategic point that is not mentioned in the instructions is the fact that it is possible to win back lost customers. Every time you have a perfect delivery record for any given round, your diligence is rewarded with the reinstatement of a subscriber who you might have passed in an earlier round. So if at first you don't succeed...
- As you press on into the week with your deliveries, the rounds become progressively harder. This increase in difficulty is brought about by a daily addition of a couple of new obstacles to make your ride a little rougher. But the earlier pitfalls will still remain constant. If you can recognize patterns at each skill plateau and devise a workable avoidance plan, you will only have to contend with one or two hazards in each round. ▣

by Steve Goldsmith

# Easy Keys

*Function key macros for the Commodore 64*

This program lets the user create function key macros for use in BASIC programming. After you assign text (70 characters maximum) to a function key, the program will ask you if you want an auto-return character. If you have an auto-return character, BASIC will interpret the line as if you had typed it in from the keyboard. For example, you could enter: LOAD"$",8 with an auto-return, and when you hit that function key it will load your directory from the disk.

To use the program:

1. Type: LOAD"EASY KEYS",8 <RETURN>
2. Type: RUN <RETURN>
3. Then enter text to represent function key. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

**Easy Keys**

```
100 REM EASY KEYS'BIDW
110 REM BY STEVE GOLDSMITH'BQQB
120 REM 1984'BEAX
130 POKE 53280,14:POKE 53281,12
    :PRINT"[CLEAR,BLACK,RVS,SPACE15]
    EASY KEYS[SPACE16]"'DSNL
140 PRINT"TYPE IN THE COMMANDS YOU
    WANT THE[SPACE7]FUNCTIONS KEYS TO
    REPRESENT."'BAKR
150 DIM F$(8):TX=49408:OPEN 1,0
    :GOSUB 280'EVYG
160 FOR A=1 TO 8:PRINT"[DOWN]
    FUNCTION "A":":INPUT#1,A$
    :B=512'GPFK
170 IF PEEK(B)=0 THEN 190'EHDG
180 F$(A)=F$(A)+CHR$(PEEK(B)):B=B+1
    :GOTO 170'HXCM
190 PRINT:PRINT"AUTO RETURN (Y/N): ";
    :INPUT#1,A$'DHRM
200 IF A$="Y"THEN F$(A)=F$(A)+CHR$(13)
    :GOTO 230'HUCE
210 IF A$="N"THEN F$(A)=F$(A)+CHR$(0)
    :GOTO 230'HTOF
220 GOTO 190'BDJY
230 PRINT:NEXT'CBJA
240 PRINT"[CLEAR,RVS]EASY KEYS
    [SPACE10]COMPILING
    INFORMATION"'BAXL
250 FOR A=1 TO 8:HI=INT(TX/256)
    :LO=TX-HI*256:POKE 49152+(A-1)*2,
    LO'NMSS
260 POKE 49153+(A-1)*2,HI:READ B
    :FOR C=1 TO LEN(F$(B))'JAHM
270 POKE TX,ASC(MID$(F$(B),C,1))
    :TX=TX+1:NEXT:NEXT:SYS 49168
    :NEW'JGRP
280 FOR A=0 TO 106:READ B
    :POKE 49168+A,B:NEXT:RETURN'ISFM
290 REM MACHINE LANGUAGE PROGRAM'BWXL
300 DATA 169,0,133,255,120,169,33,141,
    20,3'BIND
305 DATA 169,192,141,21,3,88,96,165,
    255,208,50'BMJJ
310 DATA 165,197,201,3,144,4,201,7,
    144,3,76,49'BMQF
315 DATA 234,173,141,2,240,7,165,197,
    24,105'BJRK
320 DATA 1,208,5,165,197,56,233,3,10,
    170,189'BKWG
325 DATA 0,192,133,251,189,1,192,133,
    252,169'BKWL
330 DATA 0,133,254,169,1,133,255,164,
    254,177'BKXH
335 DATA 251,240,11,201,13,208,14,141,
    119,2'BJWL
340 DATA 169,1,133,198,169,0,133,255,
    76,49,234'BMLI
345 DATA 141,119,2,169,1,133,198,230,
    254'BGCM
350 DATA 76,49,234'BJCE
360 REM FUNCTION KEY EVALUATION'BVNJ
370 DATA 7,1,3,5,8,2,4,6'BPPH
```

END

# Doing it

**The number of word processors the Amiga owner can choose from is growing. At this writing there are nearly a dozen on the shelf and more in the works. We'll compare six: *Desktop VizaWrite, WordPerfect, LPD, Scribble!, ProWrite* and *Talker.***

by Gary V. Fields

As best I can trace, the first microcomputer word processor appeared on the market around 1977. It was called *Electric Pencil*, and for the first time writers were free to compose and edit their words on a computer's monitor. The process of translating thoughts into words has never been the same.

Each year programmers, after seeing what their competition offers, strain to turn out better word processors which are faster, easier to use and have more features than those on the shelves. Nowhere are the benefits of these efforts more evident than in the current batch of word processors for the Amiga. These programs are as far removed from early word processors as lead pencils are from correctable typewriters.

Recognizing that Amiga users expect more from their systems, that's exactly what the software developers have delivered. Let's take a look at some of the leading word processors on today's Amiga market. Actually, the label "word processor" doesn't do most of these programs justice. Not only do these enable you to manipulate words using all the traditional editing features, but some also let you incorporate graphics, display and print in color and mix fonts and styles. Some will double check your documents for spelling errors or suggest synonyms or antonyms when you just can't think of the right word. One will help you organize your thoughts with an outline option and another will even talk to you.

With so many features to select from, choosing the one for your personal or business use can be confusing. Before you can decide which program is best, you must decide how you will be using it. Do you need stylized printouts, mail-merge functions, color printouts or help with your spelling? Do the files created within the processor need to be compatible with other programs? Will you be using the program daily or only occasionally? These are things you should think about before you make your purchase.

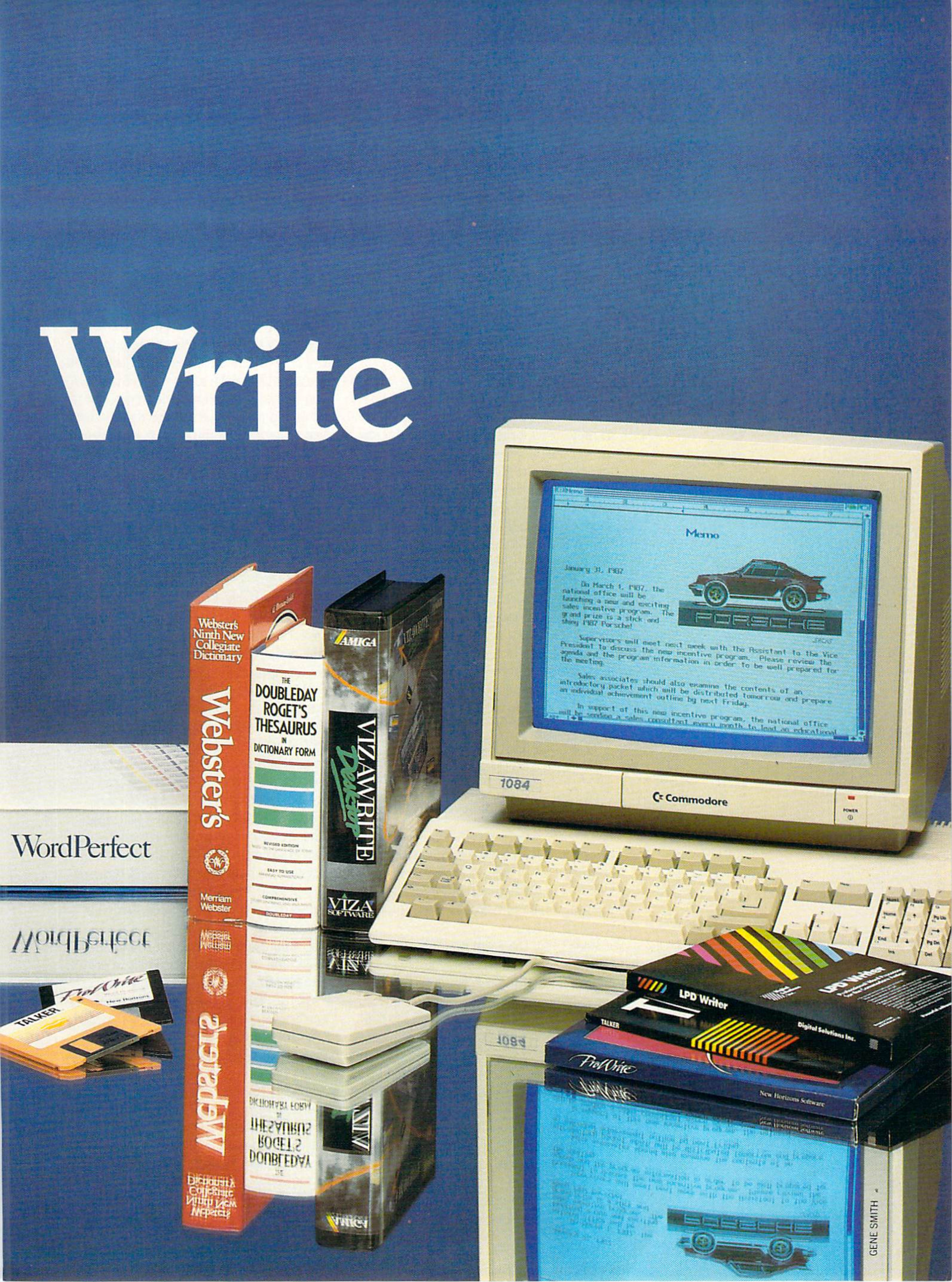
While all the programs could be used for traditional writing tasks, each is best suited for a specific chore. Each is wonderful for what it was designed, but be sure the one you purchase is geared to your needs.

## ProWrite

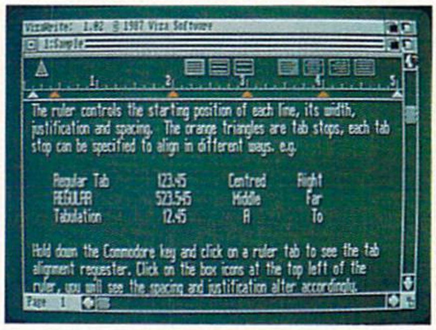
*ProWrite* from New Horizons is the perfect word processor for those who must mix text, graphics and color. No other program on the market blends these three better. By the same token, the program can handle black and white text and graphics just as well, but after you've seen the impact color adds to your display, you'll want it in your printouts.

The program uses a WYSIWYG (What You See Is What You Get) display. Using both mouse and keyboard commands you can mix fonts and styles with graphics created by programs like *DeluxePaint II* or *Aegis Animator* or any which use the IFF format. Moving, sizing, or rearranging either text or graphics is as simple as pointing, clicking the mouse and doing it. I was happily surprised to find that *ProWrite* employed most of the traditional editing tools (cut, copy, paste, move) but also in-

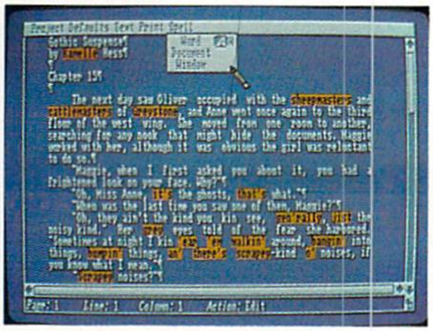
# Write




GENE SMITH




*Desktop VizaWrite*



*Scribble!*

**Recognizing that Amiga users expect more from their systems, that's exactly what the software developers have delivered.**

cluded headers and footers. The program can be used with either the default preferences screen or interlace.

*ProWrite* not only allows you to include both text and graphics on the page, but it also allows you to flow the text around the graphic or superimpose one over the other—powerful options I have not seen in any other word processor. Of course, all this can be done with mixed colors. These features make the program perfect for special needs like newsletters, charts, bulletins. You could even write, illustrate and print an entire illustrated book.

While the program creates beautiful, if not dazzling, documents (everyone loves color), it does have some quirks which bother me. First, it is a memory hog. I have 2.5 megabytes on my system and still occasionally run up against the memory barrier. To help you avoid corrupting your memory, press the HELP key to open a window which lists how much free memory remains. To avoid a conflict (or system lockup) I suggest you always check the remaining memory before importing either text or graphics.

*ProWrite* is the perfect word processor for those who must mix text, graphics and color.

I don't like the *ProWrite*'s file handling routines either. Each time you try to load or save a file, the program goes through the routine of recalling the entire directory of the current disk. With a disk filled with a hundred or so open clip art files, these delays can be infuriating, especially if you want to switch to another disk. If you change disks, you have to wait all over again.

To make things worse, the buffer is still accepting input. This means any random button pressing on your part is accepted by the buffer and will be acted upon as soon as DOS finishes. As a result, if you click a couple of times while DOS is operating, you might as well go out for lunch, because you are not going to regain control of *ProWrite* until the buffer is flushed. Most of these delays can be avoided once you realize how the routine works, but until then plan to take a coffee break when you save or recall a file.

***Editor's Note:*** *By the time you read this, version 2.0 of* ProWrite *should be available. The file handling routines have been modified, and a 95,000-word spellchecker has been added, as well as many other features. Contact New Horizons for additional information.*

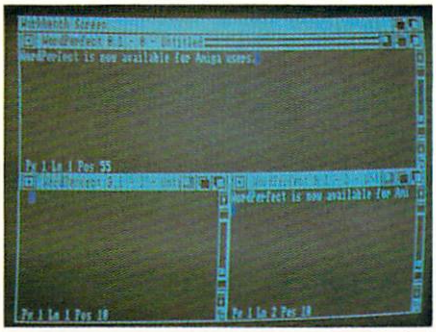
## Desktop VizaWrite

*Desktop VizaWrite* from Progressive Peripherals and Software straddles the line which divides conventional word processing and desktop publishing.

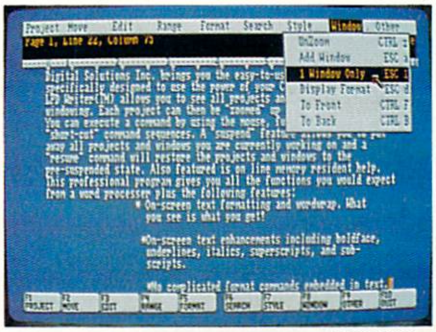
It is one of the few programs on the Amiga market which will work with as little as 256K of memory. But don't be fooled by the size of the program—it may weigh in as a bantam weight contender, but it has the punch of a heavy weight.

Like most modern word processors, *VizaWrite* uses the WYSIWYG format. The program will work in either the normal 80-column display or interlace, and it displays as many font sizes and types as you please. You can also use superscripts, subscripts, headers and footers in your documents.

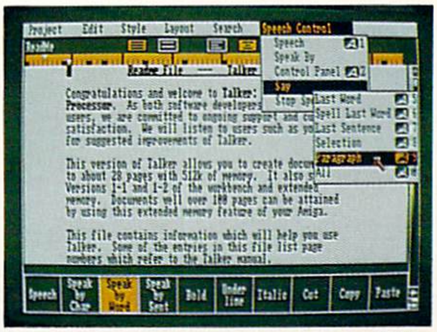
Unlike *ProWrite*, this one works with black and white text and graphics only. It also handles graphics differently than *ProWrite*. The program treats graphics, regardless of their visual width, as if they were as wide as the entire screen. This means you can't mix graphics over text or cause words in your document to flow around them (even though there may be inches of open space). To get around this limitation, the manual suggests you add the required text to graphics you want to include before loading them into *VizaWrite*. While this solution is not difficult to manage, it does require more planning on the user's part.



*WordPerfect*



*LPD Writer*



*Talker*

## *Desktop VizaWrite* straddles the line which divides ventional word processing and desktop publishing.

Commands are issued to the program by either keystroke or mouse direction. I found most of the keystroke commands logically assigned (e.g., pressing the AMIGA key and "B" causes text style to switch to bold), but was disappointed that I had to grab for the mouse often to access commands since all can't be accessed from the keyboard alone. The processor has all the traditional editing features, plus it will let you justify text and use proportional or fixed-width fonts. It will also do mail merge from a standard ASCII file (you can create them with the word processor).

If you wish, you can edit more than one document at the same time (cut, copy and move text from one document to another) or size and shape graphics by simply clicking on the graphic's edge and stretching it with the mouse. As you would expect, *VizaWrite* will multitask with other programs, providing you have sufficient memory.

The program includes one other nice feature called "Glossary." This feature lets you automatically insert specific blocks of text without retyping them. For instance, one glossary entry might store your name and address as it would appear at the beginning of a letter. Another could hold the salutation and a third your name and title to close the letter. Rather than type these repetitive blocks of text, you can save them with the glossary feature and have them inserted, type free, with a simple keystroke.

Oddly enough the program does not support the print device selected from Preferences. Instead it works with the Commodore MPS 1000 and 2000, Diablo 630, HP Laserjet, Juki 6000 and Epson FX80 and FX85 compatibles. I was able to get it to work with my Star SG10 by using the Epson FX80 driver, but if you don't own one of the printers supported, check with Progressive Peripherals or your dealer before buying *VizaWrite*.

The program does have one printout option I like—a printer-abort function. Thus, if you want to abort a printing job before it finishes, you can do so without locking up the program or wasting a lot of paper or time. (I wish all programs with printout options included exit routines as graceful as this one.)

Although the word "desktop" is in the program's name, *VizaWrite* is far from being a serious contender in the desktop publishing field. I think this word processor will see more duty in offices or classrooms where it is important to include designs, sketches, charts, maps, etc. with text. It does that chore easily and efficiently, but those who buy the program planning to do desktop publishing will be disappointed with its limitations. At this writing the program does not include a

*Continued on page 110*

## Amiga Word Processor Comparison Chart

| Feature: | Viza-Write | Word-Perfect | LDP Writer | Scribble | ProWrite | Talker |
|---|---|---|---|---|---|---|
| Copy Protected | N | N | Y/N | N | N | N |
| Help Screens | Y | Y | Y | Y | N | N |
| Tutorial | N | Y | Y | Y | Y | N |
| Key/Mouse Control | Mixed | Either | Either | Mixed | Mixed | Mixed |
| Word Wrap | Y | Y | Y | Y | Y | Y |
| Cut/Copy/Paste | Y | Y | Y | Y | Y | Y |
| Delete Word | N | Y | Y | Y | N | N |
| Delete Sentence | N | Y | Y | Y | N | N |
| Delete Block | Y | Y | Y | Y | Y | Y |
| Search/Replace | Y | Y | Y | Y | Y | Y |
| Headers/Footers | Y | Y | Y | Y | Y | N |
| Superscripts | Y | Y | Y | (printer | Y | N |
| Subscripts | Y | Y | Y | codes) | Y | N |
| Window/Orphan | N | Y | N | Y | N | N |
| Auto Reformat | Y | Y | Y | Y | Y | Y |
| Line Spacing | Y | Y | N | Y | Y | Y |
| Multiple Fonts | Y | N | N | N | Y | N |
| Graphics & Text | Y | N | Y | N | Y | N |
| Underline | Y | Y | Y | Y | Y | Y |
| Boldface | Y | Y | Y | Y | Y | Y |
| Italics | Y | Y | Y | Y | Y | Y |
| Print Color | N | N | N | N | Y | N |
| Quick Cursor | Y | Y | Y | Y | Y | N |
| Mail Merge | Y | Y | Y | Y | Y | N |
| Speller | N | Y | Y | Y | N | N |
| Thesaurus | N | Y | N | N | N | N |
| WYSIWYG Screen | Y | Y | Y | N | Y | Y |
| Print To Screen | N | N | N | Y | N | N |
| Window Control | Y | Y | Y | Y | Y | N |
| Multitasking | Y | Y | Y | Y | Y | Y |
| Marcos | N | Y | N | N | N | N |
| Save Icon | Y | Y | Y | Y | Y | Y |
| Uses Voice | N | N | N | N | N | Y |
| Manual | Good | Excellent | Good | Good | Good | Good |
| Ease of Learning | Easy | Medium | Easy | Medium | Easy | Easy |
| Memory Required | 256K | 512K | 512K | 256K | 512K | 256K |
| Price | 149.95 | 395.00 | 119.95 | 99.95 | 124.95 | 69.95 |

# SECRETS & MYSTERIES

## Amiga in Video: No Longer a Secret

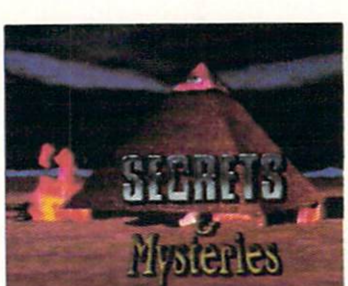


Illustration 1

RON CRABB

**"Take a journey with us beyond reality, beyond imagination to a world that shouldn't exist, but does. That can't be real, but is. Where knowledge ends, where answers can't be found, where whispers are spoken, and dreams awakened. Enter the world of *Secrets and Mysteries*."**

**by Matthew Leeds**

This is the opening to each episode of a new television series entitled "Secrets and Mysteries." It is the only television series that currently uses the Amiga as the primary source of computer graphics in every episode and in the process has broken new ground in incorporating the Amiga into a broadcast environment. There has been tremendous interest in using the Amiga for professional video applications, and hardware and software for that purpose has been one of the most active areas of development in Amiga products.

In November I interviewed Jonathan Moser, Post Production Supervisor and Senior Editor on the production of *Secrets and Mysteries*, to discuss the process of integrating the Amiga's graphics in a broadcast environment. Also present was Jeff Bruette from Prism Comuter Graphics. Bruette has been a consultant on several programs that have used the Amiga, including *Amazing Stories* and *Max Headroom*.

**Matthew Leeds:** Tell me a little about the

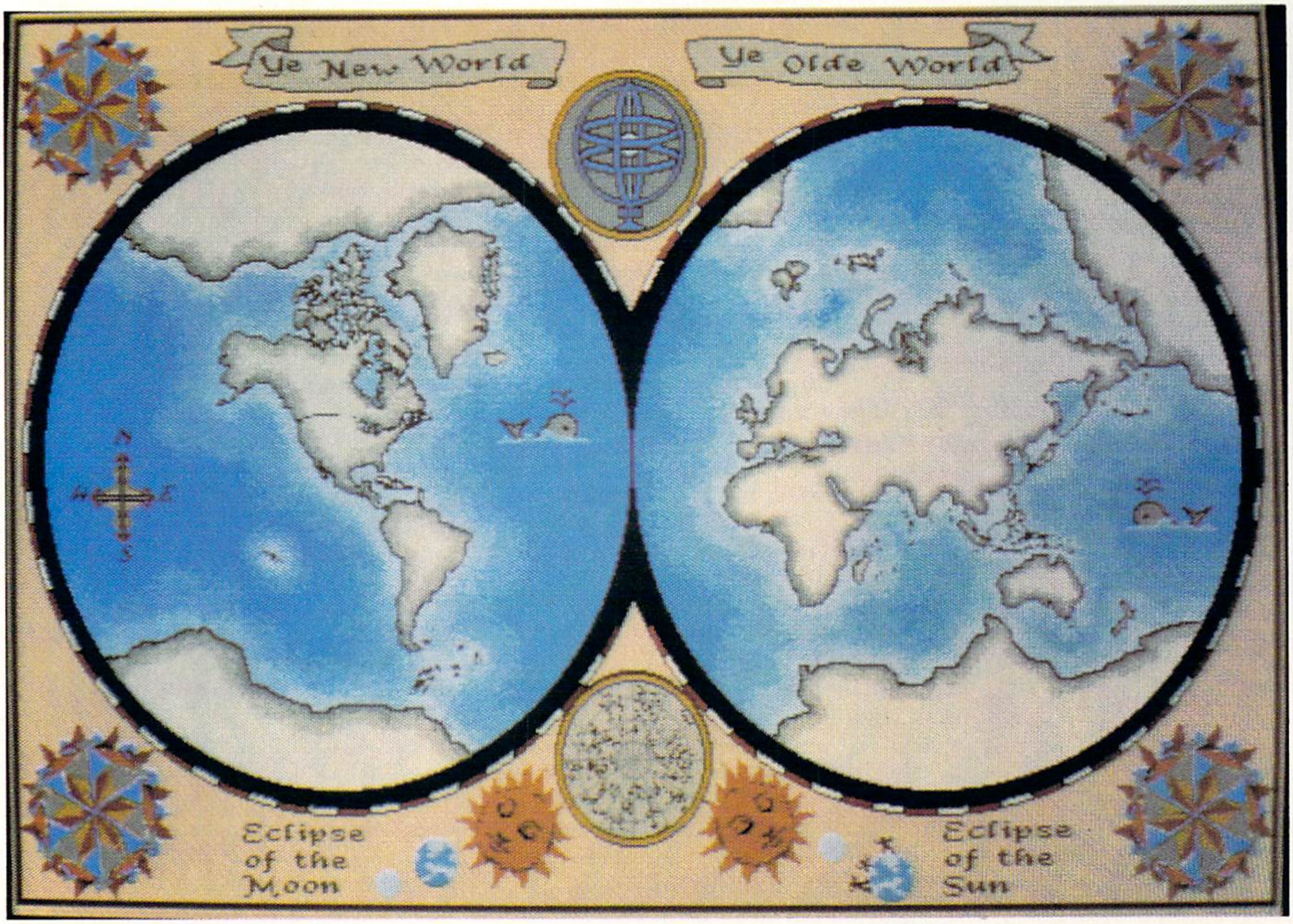



Illustration 3

series and what you had in mind as you started production.

**Jonathan Moser:** We wanted to create a show with a style, sort of a magazine show with a narrative structure based on recreations of historical events. For the first show, based on the Titanic disaster we hired actors, shot them on 8mm and inserted them into a newsreel we created from historical footage. Later these people crop up and tell the story of their experience on the ship.

**Leeds:** When did you decide to use an Amiga as part of your computer graphics equipment?

**Moser:** Early on, as we were working on the show I was looking into editing software that was being written for the Amiga. I've had an Amiga since it first came out about two years ago. I was referred to the company that was publishing the software, Prism Computer Graphics, and met Jeff Bruette, who owns Prism. Jeff had been working with the Amiga in professional video applications for quite some time. He consulted on an episode of *Amazing Stories* and worked on the *Max Headroom* show. After I had seen what he was capable of achieving with the Amiga, I called a staff meeting.

**Leeds:** At this point you needed graphics, but . . .

**Moser:** We had some parameters we had to fill. The show starts in the study of the main character. The study is suspended in time and space with a sort of H.G. Wells feel—full of technological gadgets with a nineteenth century look to them. One of them is a viewing portal that is only shown at the beginning and end of the show. He looks into it to start the show, and we see a unique archetypical image used to tie the beginning and end of the show together.

He also has a viewing screen which allows him to see events in the past and future. We use it as a vehicle for showing film clips, created segments or other material we want to present. Finally, he has a computer, and the computer is where I thought we could use the




RON CRABB

Illustration 2




Illustration 4

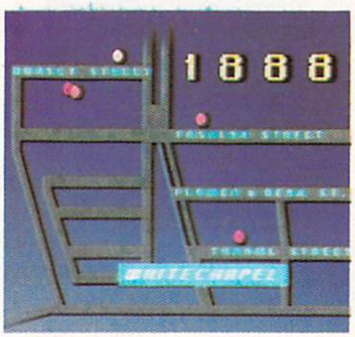



Illustration 5

Amiga. I wanted the feeling of a nineteenth century Cray.

**Leeds:** But why use the Amiga? There were other graphics systems available, and they had already been integrated with video.

**Moser:** As far as I'm concerned the Amiga was the only alternative, because we couldn't afford $300 an hour to use the Paintbox (used to create video graphics in a professional production). We had used the Paintbox occasionally, but the Amiga seemed to be the natural alternative.

We used the Paintbox for the opening sequence at the beginning of each episode, but that was a one-time cost. (See illustrations 1 and 2) There was no way we could afford to use the Paintbox for graphics in every episode.

**Leeds:** Once you decided that the Amiga could create the look you needed, what was your next step?

**Moser:** The next big thing was getting the Amiga's graphics on the screen. That proved to be the hardest part of it. People talk about the Amiga being used on *Max Headroom,* but it was used there to portray a low-end video security system. We, on the other hand, had to make the Amiga look as good as we could.

We had the first acid test—bringing the Amiga into the edit suite and tying it into the system. This was a major headache. The genlock does not lock subcarrier and sync together correctly. this is not a problem for consumer VCRs, but it is not acceptable in a broadcast environment. We found that no matter what else we did, we also had to run the signal through a time base corrector to get the sync and subcarrier to lock up correctly.

**Leeds:** This was using the Amiga's composite video output directly and the standard genlock?

**Moser:** That's right. We started with the simplest setup to see if it would work, but we ran into other problems. The biggest problem is that we see these beautiful images on the Amiga monitor in RGB, and that's not what you get when you interface to the video output of the Amiga. It's not a problem on just the Amiga, but occurs any time you look at something other than NTSC display.

Another big problem is the difference between the palette you get in RGB output and NTSC output. Working on an NTSC monitor is not as pleasant as working on an RGB monitor, but it's what you must do to get a good idea of how it's going to look when you're done.

**Leeds:** How did you finally solve the problem of the Amiga's NTSC video quality?

**Moser:** What we do is run the RGB signal through a COX encoder, a "broadcast quality" RGB to NTSC encoder, then through a time base corrector. Then we record it on Betacam.

One of the things that I've noticed is that everyone is claiming, "RS-170A broadcast quality" when they advertise equipment for the Amiga, but when you look at it on a waveform monitor, it's all over the place.

**Leeds:** Why record it on Betacam? Why not go directly to three-quarter or one-inch tape?

**Moser:** The quality of three-quarter inch is just not good enough, and I don't want to tie up a pair of one-inch decks. We record everything from the Amiga in duplicate, it makes editing easier.

**Leeds:** It sounds like you spent a lot of time to get the Amiga's graphics looking right. Wouldn't it have been easier, not to mention cheaper, just to use some other system?

**Moser:** I knew we were opening a can of worms, that we were taking a chance. There were problems throughout the development of the show that caused incredible amounts of down time tying up the edit suite; and remember that the suite costs hundreds of dollars an hour. I think we started catching up about two months ago, where the money we had lost in learning how to use the Amiga for what we wanted to do became less than the money we were saving using the Amiga.

One of the biggest problems was simple communications—explaining what kind of graphics needed to be created. Cris Palimino (computer artist) had to work from the script, without a storyboard or sketch of what was expected. We had trouble explaining what level of detail should be used, that sort of thing.

**Jeff Bruette:** We got complaints that the maps were too detailed, too "cartoonish." (Illustration 3) So I decided to make them simpler, more "computer looking." I used *DeluxePaint*, turned grid on, and drew the map using lines, so that from the shape you'd recognize it. The creation time went down, because now you don't have to worry if there's a lake or an inlet there, because if it sort of looks like it then it's all right, maybe there is and maybe there isn't. Plus when the map was finished I would do a neon effect to it, so too much detail would just be in the way, and the neon effect helps to get rid of the dot crawl that you can get with sharp contrast changes. (Illustration 4)

Another thing we would do for monochrome graphics is to do a matte and then key a color back in to get the look we want. We can use the video switcher to add key effects, gradations, drop shadows, and get better results than doing them straight on the Amiga. I knew I would have access to all of this stuff. (Illustration 5)

**Leeds:** It sounds like you're enhancing the Amiga's graphics quite a bit. Can't you get the results you want directly?

**Bruette:** This is not because the Amiga is a

second-rate machine. ADO (Ampex Digital Optics) effects, switcher effects, are just normal edits used on just about all computer graphics. The opening sequence of the show was done on the Paintbox, but it's the ADO that puts reflection of the fire in the window and animates a good percentage of the sequence. So doing that sort of thing with the Amiga is not saying the Amiga doesn't cut it, because you have to do the same sort of thing with other systems.
**Leeds:** Tell me about some of the other graphics you've used in episodes.
**Bruette:** We used DigiView to create a series of images of animals that might be the Loch Ness monster. We only had a short time to make the series, and DigiView gave us a unique style that worked in the time we had. (Illustration 6)
**Moser:** Cris used Aegis' *VideoScape* to create sequences for the Hindenberg episode. She was able to give me a wireframe drawing of the design of the Hindenberg, animate a rotation of the wireframe, and create an animation of a design for a futuristic airship in just a short time. (Illustration 7)

With the Amiga, we can afford to have one right here, and we can make changes any time we want.

**Leeds:** You mentioned communication problems. I would assume by now you've worked all of those out.
**Moser:** We've started using modem transfers. Cris works at home, and she can send me what she's done over the phone instead of coming into the studio. This lets me preview her work before we finalize it and make suggestions for changes. You can't do that with any other system, but then no one could afford to have any other system at home.

Another thing about doing this work on an Amiga—if you want to make a change you can afford to. If you create something on the Paintbox, once it's laid down, it costs too much to go back and change it.
**Leeds:** Have you come up with any unexpected uses for the Amiga besides creating graphics?
**Moser:** Jeff and I talked early on about creating different transitions between segments in a show. We've been using the Amiga to create key effects. These are segues between two different pieces of tape. By creating a difference between white and black levels we can create a key. I lay them off to tape and then run them through the switcher.
**Bruette:** I used *DeluxePaint* and created a low-res palette, set half of the colors to black and half to white. I then drew on the screen using only all of the different black colors. When you turn on color cycling, the white shifts into the black area, eventually all of the screen becomes white. By creating different screen patterns you can get different transitions. Using the switcher we could put one video image in the black area and use the transition to white to switch to the other video image, in real-time. The patterns are limitless.
**Leeds:** What do you see as the future of the Amiga in broadcast applications?
**Moser:** Who knows what's going to happen with the future? That's why I'm excited about using the Amiga on this show. I'm trying to create some complicated scenarios, and we've just about hit the limits of what we've got. We're waiting for the next generation of hardware and software to push the Amiga further.

One of the things that ties us up most in production is on-screen character generation. We currently use a Chryon, but I believe the Amiga is capable of generating fonts for us to use. Currently it doesn't have the resolution, but what I want to do is have an Amiga tied in live in the edit suite going through the switcher. Once we find the magic combination of hardware and software that will give us something we can use in real-time, we'll be able to save a lot more money using the Amiga.
**Leeds:** Cost seems to be a big factor in everything you do.
**Moser:** For shows like this, the Amiga is what we can afford, and we can use it very well. We have the world's smallest budget. People don't realize that the show doesn't make money until it goes into syndication. We're trying to make it look expensive without spending the money. Post production is the most expensive part of this show, and the Amiga helps keep that under control.

We never said the Amiga is going to replace a half million dollar piece of equipment, but what we're saying is that it can augment and do what it can do best, and in a lot of regards even our chief engineer will tell you it's got more capability in its color cycling, in its animation, than a lot of other equipment.
**Leeds:** After all is said and done, it's not what goes on in the edit suite but the response from the audience that counts. What is the future of *Secrets and Mysteries?*
**Moser:** The critical reaction to the show has been great. A lot of people have complimented the look of the show, and a big part of that is due to the Amiga. The status of the show is that ABC Video Enterprises is handling distribution, and in January or February we will go into syndication. It will most likely be on the air around 6 p.m. to 8 p.m. in local markets.

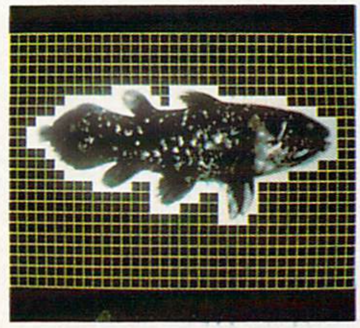


Illustration 6

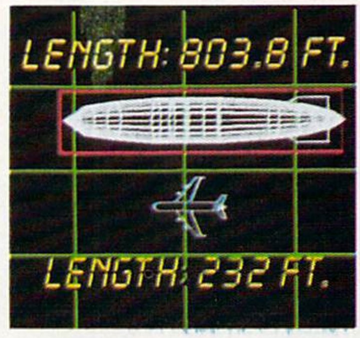
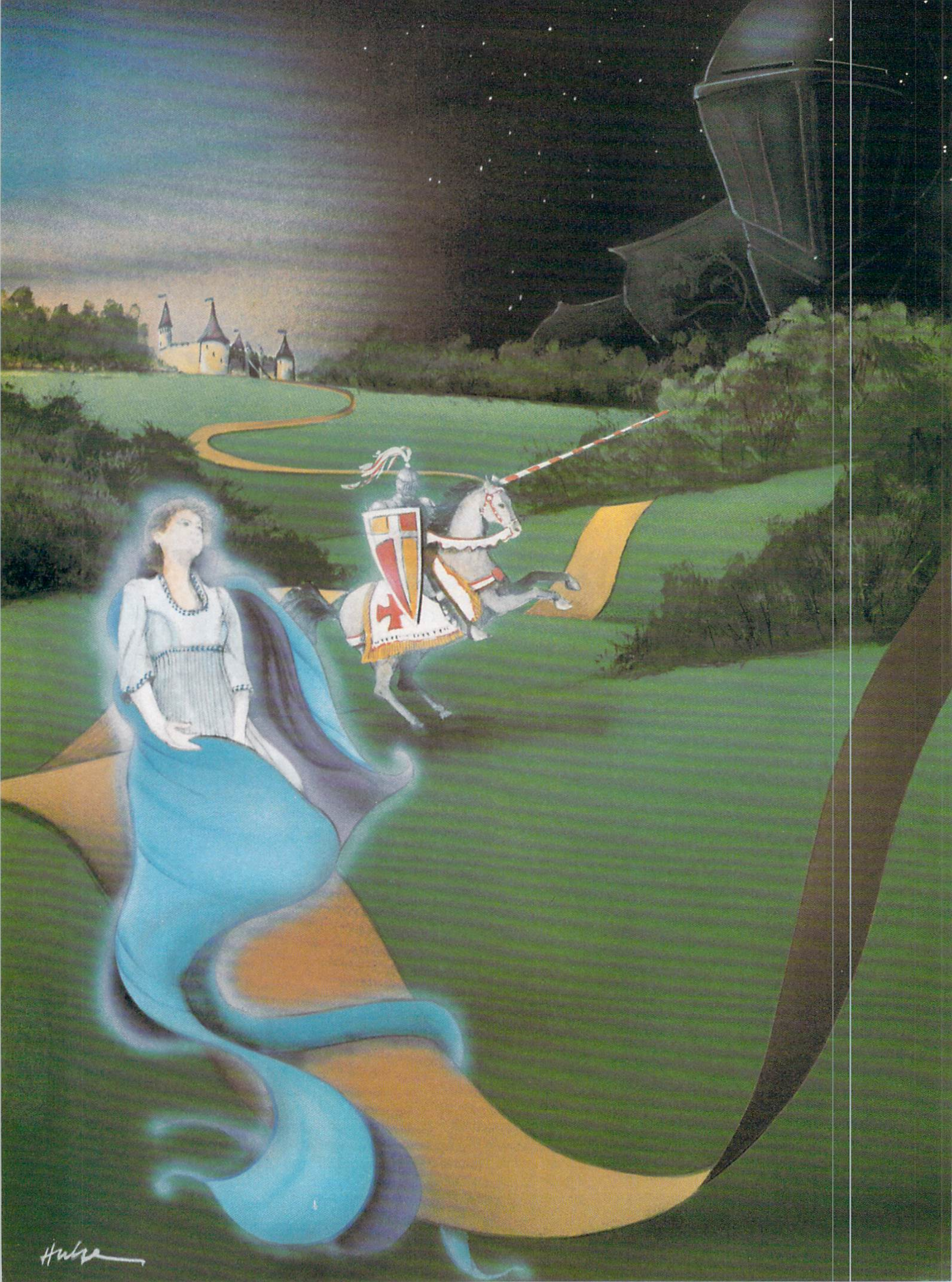



Illustration 7




JESSE HULSE

With the coming of the computer, a whole new age and style of adventure games was introduced into the minds and hearts of millions.

by Russ Ceccola

# QUEST for ADVENTURE

Adventure. What kind of images does that word conjure up in your mind? Put down this magazine, close your eyes and think about what an adventure would be like for you.

If you're like most people, you may have thought about an adventures involving characters like those in the picture that appears before you. Dragons, knights, beautiful ladies, magical creatures, castles and strange lands are all part of the fantasy realm of adventures. But adventures are not limited to just this type of atmosphere. They can take place in jungles, outer space, western settings, dungeons, future worlds, aquatic environments, different planes of reality and even in your back yard. A specific time period or setting only adds reality to an adventure—the elements of adventure are in them all.

The word "adventure" is defined by Webster as a risky undertaking, a remarkable and exciting experience or a business adventure. The games that we have come to call "adventure games" have elements of all three definitions. Also, just like the adventures above, adventure games occur in innumerable places and involve many levels of goals, both intermediate and final.

Adventure games have always existed in one form or another. The game that brought computers and adventures together was appropriately titled *Adventure*, written by William Crowthers and Don Woods. It first appeared on M.I.T.'s ARPAnet in the 70's. The description that kicked off the whole revolution was a simple one: "You are standing at the end of a road before a small brick building." Ironically, the file name length restriction on ARPAnet made "*Adventure*" become "Advent," meaning arrival—in this case the arrival of a new generation of computer games.

Since then, there have been literally thousands of adventures designed for all types of computers. An accurate summary of even those currently commercially available would fill a large volume. The purpose of this article is not to summarize adventure games, but rather to describe the mindset that you should possess in playing these games—a guide to playing adventure games.

To prepare for writing this article, I took every single adventure game I own and tried to classify it. Over the course of a few hours, the six categories resulted. But before I offer any guidance, you have to first get all the necessary tools together.

## Getting Started

By no means are all of the items that I'm suggesting necessary. In some cases, none are necessary to play through an adventure game. It's up to you which of the following items to assemble to fully prepare yourself for an adventure game experience:

- A clipboard or something portable to write on. I wouldn't

suggest using the desk that the computer is sitting on, unless you have room in front of your computer, because you need to be able to look directly from your notes at the computer screen.

• Different colored pens or pencils. I'll describe what to do with these later.

• Lots of regular, No. 2, yellow, wooden, I-used-these-all-through-school

• Scrap paper to draw maps and take notes.

• Graph paper. This is usually good for mapping dungeons, adventures that have a matrix-oriented geography, or terrain that can't be mapped by conventional means. More on the use of this later.

• Hint books. All Infocom and Sierra On-Line adventure games have hint books. Some specific games such as *Bard's Tale* also have hint books printed for them. These books should be used only when you're really stuck. However, after finishing a game, it's a lot of fun to read through the entire hint book to see if there are any silly responses or occurrences that you missed.



Imagination is the key element you must possess in order to play text adventures.

Learn all of the major commands and special words that you can use in the game.

• Adventure books. There are some commercially available books that deal entirely with adventure games and give solutions, maps and hints for assorted computer adventures. You'll find that most will be useful, but the two that I have found extremely accurate, precise and helpful are the two volumes of *The Book of Adventure Games*, written by Kim Schuette.

• Pre-printed map-making kits. If you don't want to draw your own maps, you can buy a kit that contains preprinted pages of boxes (for location mapping), special graph paper (for role-playing games and dungeon mapping) and character roster sheets (for role-playing games). These can be obtained through Quest Busters, the newsletter that deals entirely with adventure games. (QuestBusters, P.O. Box 525, Southeastern, PA 19399-9968)

• Music. You might want to put on some favorite music to put you in a ready-and-willing mood for playing through an adventure. I like listening to heavy metal through headphones. Whatever turns you on will do.

• Time. This is the most important thing you'll need to play an adventure game. Most take tens of hours—some take more. The satisfaction you'll get after finishing and the knowledge you'll gain will make it all worthwhile.

Now that you have everything together, we can talk about how to play a specific type of adventure game. Bear in mind that these classifications are not absolute and that some games fit more than one category.

### Text Adventure Games

Text adventures are probably the most underrated adventure games. People either love them or hate them. By nature, they are comprised entirely of text, and in order to play them you have to type in commands via the keyboard. Some people hate typing and refuse to play games that require it (but may break down if someone else types). Others can't or won't use their imagination and would rather see pictures on the screen.

Imagination is the key element you must possess in order to play text adventures. All you have is a bunch of words in front of your eyes. How well you interpret these words and envision their meaning determines the degree of enjoyment that you'll get from the game. Honestly trying a text adventure may give doubters a different opinion.

The first adventure I ever played on a computer was *Blade of Blackpoole*, a text-and-graphics game. I loved it, but was skeptical about all-text games. When I first played *Zork* and *Adventure*, my opinion changed.

Text adventures are highly puzzle-oriented and geography-intensive. Because there are no pictures, more effort must be made to make the text captivating. What better way to do that than to include all sorts of puzzles that you must solve in order to travel through the world contained within the words. There are usually a lot of places to visit in a text adventure. Again, because of the lack of graphics, there is more memory space with which to work. Creating more puzzles, characters, objects and locations is the logical thing to do with that space.

Most text adventures require making a map. This is an easy process. Using scrap paper and pencils, draw a box for each location in the game. Inside the box write the name of the location. Alongside the box, with colored pens/pencils for emphasis, write the names of any objects in that location. Repeat this process for every place in the game. The only other step in mapping a game is connecting the boxes.

If you don't want to draw your own maps you can buy a preprinted map-making kit.

Draw lines between boxes to show how to get from one location to the next. Determining the routes to take can be difficult in situations like mazes, but for the most part this is straightforward. Most games will tell which directions you can go. Usually, one of those directions will lead back to a



place you just came from. Find out which direction you must move to go from box A to box B and then find the direction you must move to go from box B to box A. Using the centers of the four sides and the four corners for the eight directions of the compass and the top center as north, draw a line connecting the directions used to go in both directions from A to B.

Read all descriptions given in a text adventure carefully. Sometimes, a game will describe an object that is in a room, but won't list it with the items that you immediately see. Because the game is comprised entirely of text, authors have to be very selective with their words. If you can get a hard copy of your game (using special commands that most adventures contain), do so. Also, if you can save your game into some type of buffer, use this feature. It allows you to look at the proceedings of your game later.

Check all possible exits in a "room." Make sure that you know where they are and where they lead. Some exits may not be accessible until some puzzle is solved. Don't let this discourage you from examining the other directions.

Learn all of the major commands and special words that you can use in the game. Some parsers are better than others and have more commands available in a game. You might think that you can say TAKE THE BROWN BAG but the parser will only accept GET BAG. Unfortunately, in some circumstances, you have to

A good text-and-graphics adventure allows you to turn the pictures off or make them smaller on the screen.

learn to play a game using only the limited words available. Such a situation reduces the enjoyment considerably. As parsers get better, this problem will end.

Keep a clear mind when playing a text adventure. Try not to let the outside world interfere with your experience of the inner world on the disk. Try hard to imagine what is in the words you see, but at the same time don't read too much into them.

Think out your strategy for playing the game. Plan carefully to prepare yourself for any harrowing encounters or particularly difficult puzzles. If you know that a cyclops may be coming along, you'd better have something to poke out his eye or kill him if he attacks.

Save the game often to a blank disk; this will help if you've made a mistake. Rare is the adventurer who finishes a game or plays without getting killed on the first try. It just doesn't happen! Saving the game often eliminates the pain of poor planning and unreasonable strategy.

Text adventures usually require you to manipulate a lot of objects. Don't use these objects whimsically. Rather, find out their purpose through saving the game and experimenting, and then save them for circumstances that seem to cry out for just such an item. This is the way to develop skills for recognizing items that are red herrings and those that are really useful.

Finally, most text adventures (and, indeed, adventure games in general) have a fantastic ending. Some even have trick endings. In any case, the story will come to a climactic and satisfying close with that last command. There may also be particularly challenging or interesting puzzles near the end. Although you won't know you're almost finished in most cases, it is a good idea to track or document carefully everything you've done in the game in order to either reproduce it entirely or to "relive" that ending.

Examples of text adventures are: *The Zork Trilogy*, *Amnesia*, *Mindwheel*, *Enchanter*, *Planetfall*, *The Lurking Horror* and, of course, *Adventure*.

### Text-and-Graphics Adventure Games

Text-and-graphics adventures are simply text adventures with pictures. That's it! However, there are still some things that you need to know about them that could make your experience with them that much better.

There are two types of text-and-graphics adventures: those that simply add a picture to text and those in which the picture used is animated or shows objects that may be moved, taken or manipulated. The second type is more fun. Play text-and-graphics adventures in the same way that you would play text adventures (mapping and all) and remember the following things about them:

The first type of text-and-graphics adventures only adds pictures to the text. Its purpose is to satisfy the adventure aficionado who can't stand a bunch of words on the screen. These pictures include everything from close-ups of objects you may have acquired to

*Continued on page 114*

by Buck Childress

# Code 64 and Code 128

I couldn't believe what I saw! I witnessed the actual disintegration of a material object. True, my name really is Buck. But my last name isn't Rogers. And, the last time I checked my calendar, it wasn't the twenty-fifth century. The only side arms I was carrying at the time were my left and right ones, and they both had hands attached to the ends of them. Consequently, the only thing I could point with were my fingers. The guns I do own don't shoot rays. So what happened? What on earth disintegrated?!

Remember that nifty little user's guide that came neatly packed with your computer? Mine vaporized. Or, more accurately, fell to pieces. We're talking miniscule pieces over which the most ardent jigsaw puzzle jockey would be out pulling his hair. The only remnants left are a few particles lying on my desk. I kind of hate to dust them off. It would be a permanent farewell to an old friend. Sure, I've collected other guides over the years. But that was my first. It came with the good old VIC-20 I acquired years ago. I suppose an explanation is in order.

All Commodore user's guides, and other reference books as well, have pages containing the ASCII (CHR$) codes and SCREEN (POKE) codes. No matter how much you program, you can't remember them all. At least I can't. Over the years I flipped back and forth through those pages of codes like a frog in a frying pan. Until that fateful day when I flipped for the last time. Poof . . . dust. May it rest in pieces.

Well, I suppose I could use one of my other guides. Somehow, though, it's like breaking in a new pair of boots. They just don't feel right until they've been through the cow pasture a few dozen times. Besides, even with the old guide, I wasted a lot of time and effort flipping pages searching for this CHR$ code and that POKE code. If the guide hadn't disintegrated, my patience eventually would have. Many are the times I muttered (well, maybe shouted) a few expletives deleted. I always swore (in various ways) that I would make an automatic code guide. Heck, I've got computers! Let them do the work!

Code 64 and Code 128 easily and automatically return the CHR$ and POKE codes for any character you want . . . as fast as you can press a key. And both work slicker than Buck Rogers' ray gun. Just load, aim, and fire! Here's how:

After you've saved a copy of Code 64/128, run it. The loader pokes the machine language data into memory and checks for errors. When the data is through loading, you can activate it. For the 64, type SYS 49152 and press RETURN. SYS 4864 activates the 128. You deactivate it the same way, with SYS 49152 or SYS 4864. This is called "toggling."

Code 64/128 sits as quiet as a church mouse, waiting for you to call on it. To dial it, press the BACK ARROW key, then RETURN. Now, just press any key you want to check the code for. Pressing the SHIFT or COMMODORE key at the same time returns those character codes, too. At the top of your screen, you'll see the character, followed by the ASCII (CHR$) and SCREEN (POKE) codes. You can also get the codes for the CURSOR, HOME, DELETE, RETURN, and function keys as well. Speaking of function keys, if you happen to be using the 128, you'll get the codes for whatever you have them set to. If they're in their default settings, Code 128 returns the codes for each character at a time. For example, if you press F5, you'll see the codes for each character in DSAVE", one at a time. But it happens in a flash. It's an interesting effect, though. For a real thrill, do it a bunch of times, and your eyeballs will start spinning like a gyroscope. On the 128 you can also get the codes for the TAB and ESC keys and all that other good stuff. By the way, if you are using the 128, make sure your monitor is set to a 40-column display!

Press another key (or the same one if you like instant replays) for more codes. Flip around like crazy. The computer will go as long as you want. When you've finished your code checking, press the STOP key to return to BASIC. Press the BACK ARROW key if you want to check some more.

Give Code 64/128 a shot. The only disintegration that will result is the time it takes to get your codes! ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Code 64

```
30 PRINT CHR$(147)"LOADING AND
   CHECKING DATA LINE:":J=49152'DMVL
40 FOR B=0 TO 11:READ A'EGWD
50 IF B=0 THEN L=PEEK(64)*256+PEEK(63)
   :PRINT CHR$(19)TAB(31)L:PRINT'MYCN
60 IF A<0 OR A>255 THEN 80'FIBG
70 POKE J+B,A:X=X+A:D=D+1:NEXT B
   :READ A:IF A=X THEN 90'LVWP
80 PRINT"ERROR IN DATA LINE:"L
   :END'CCVK
90 X=0:J=J+12:IF D<300 THEN 40'GOHM
100 PRINT"THE DATA IS OK."'BAYY
110 PRINT"SYS 49152 TOGGLES ON AND
    OFF...":PRINT'CBUF
120 PRINT"WHEN ON, PRESS [BACK ARROW]
     TO ENTER."'BAGE
130 PRINT"PRESS STOP TO EXIT..."
    :END'CBEE
140 DATA 162,34,160,192,169,79,32,210,
    255,169,78,204,1744'BXWI
150 DATA 1,3,208,9,162,139,160,227,
    169,70,32,210,1390'BTDI
160 DATA 255,142,0,3,140,1,3,76,210,
    255,173,1,1259'BQPJ
170 DATA 2,240,3,76,139,227,173,0,2,
    201,95,208,1366'BREK
180 DATA 246,169,64,141,138,2,32,68,
    229,169,221,160,1639'BWVM
190 DATA 192,32,30,171,169,0,133,198,
    32,225,255,208,1645'BWGN
200 DATA 11,169,0,141,0,2,141,138,2,
    76,116,164,960'BQUE
210 DATA 32,228,255,240,235,201,3,240,
    236,72,32,68,1842'BVWG
220 DATA 229,104,133,212,133,252,32,
    210,255,169,174,160,2063'BBHI
230 DATA 192,32,30,171,169,0,166,252,
    32,205,189,165,1603'BWDI
```

```
240 DATA 252,201,20,208,11,169,148,
    174,134,2,141,0,1460'BVFJ
250 DATA 4,142,0,216,169,192,160,192,
    32,30,171,165,1473'BVWK
260 DATA 252,201,13,240,4,201,141,208,
    10,169,216,160,1815'BXAL
270 DATA 192,32,30,171,76,57,192,169,
    0,174,0,4,1097'BRPL
280 DATA 32,205,189,76,57,192,13,13,
    65,83,67,73,1065'BSFM
290 DATA 73,32,40,67,72,82,36,41,32,
    61,32,0,568'BNPM
300 DATA 13,13,83,67,82,69,69,78,32,
    67,79,68,720'BOAF
310 DATA 69,32,40,80,79,75,69,41,32,
    61,32,0,610'BNSF
320 DATA 78,79,78,69,0,13,13,13,13,29,
    29,29,443'BNKG
330 DATA 29,29,29,29,29,29,29,29,29,
    29,29,29,348'BODI
340 DATA 18,40,67,79,68,69,32,54,52,
    41,13,13,546'BOBJ
350 DATA 18,80,82,69,83,83,32,65,32,
    75,69,89,777'BOGK
360 DATA 32,70,79,82,32,67,79,68,69,
    83,32,42,735'BOTL
370 DATA 42,42,32,83,84,79,80,32,87,
    73,76,76,786'BOWM
380 DATA 32,69,88,73,84,146,0,0,0,65,
    72,83,712'BMBM
```

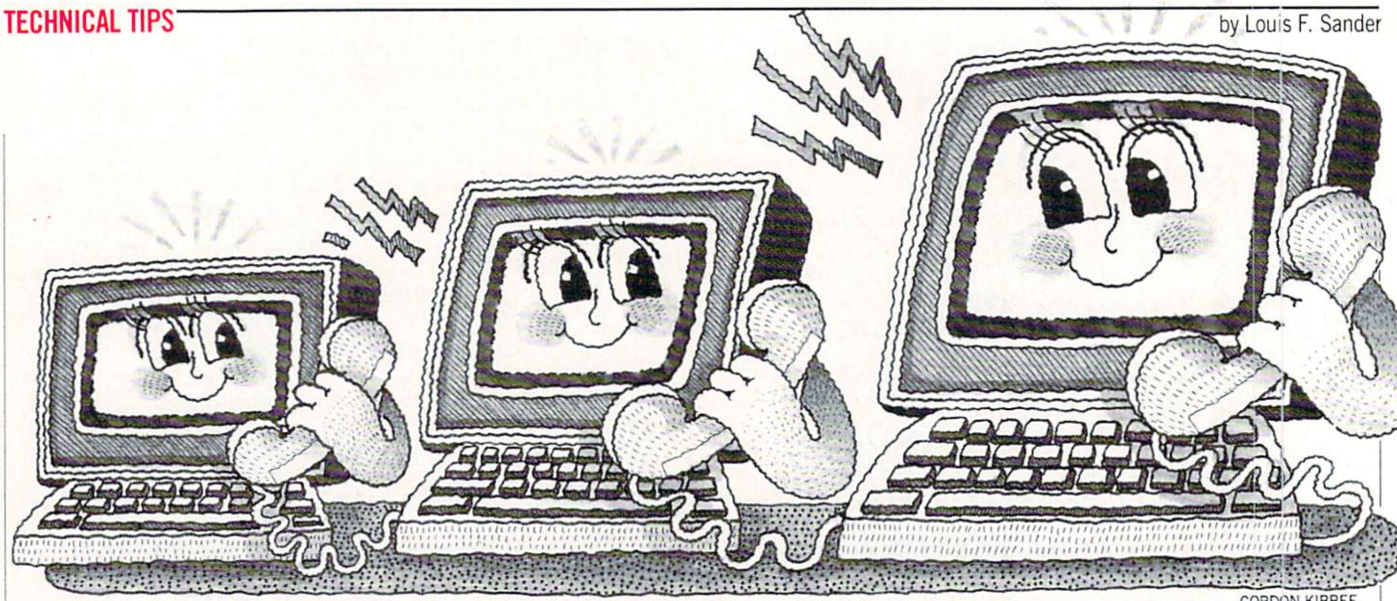
**END**

## Code 128

```
30 PRINT CHR$(147)"LOADING AND
   CHECKING DATA LINE:":J=4864'DLYL
40 FOR B=0 TO 11:READ A'EGWD
50 IF B=0 THEN L=PEEK(66)*256+PEEK(65)
   :PRINT CHR$(19)TAB(31)L:PRINT'MYGN
60 IF A<0 OR A>255 THEN 80'FIBG
70 POKE J+B,A:X=X+A:D=D+1:NEXT B
   :READ A:IF A=X THEN 90'LVWP
80 PRINT"ERROR IN DATA LINE:"L
   :END'CCVK
90 X=0:J=J+12:IF D<288 THEN 40'GOWM
100 PRINT"THE DATA IS OK."'BAYY
110 PRINT"SYS 4864 TOGGLES ON AND
    OFF...":PRINT'CBCE
120 PRINT"WHEN ON, PRESS [BACK ARROW]
     TO ENTER."'BAGE
130 PRINT"PRESS STOP TO EXIT..."
    :END'CBEE
140 DATA 162,34,160,19,169,79,32,105,
    146,169,78,204,1357'BWYI
150 DATA 1,3,208,9,162,63,160,77,169,
    70,32,105,1059'BRLI
160 DATA 146,142,0,3,140,1,3,76,105,
    146,173,1,936'BPTJ
170 DATA 2,240,3,76,63,77,173,0,2,201,
    95,208,1140'BPWK
180 DATA 246,169,64,141,34,10,169,147,
    32,105,146,169,1432'BXKM
190 DATA 0,133,208,32,125,255,13,13,
    13,13,29,29,863'BRWM
200 DATA 29,29,29,29,29,29,29,29,29,
    29,29,29,348'BODE
210 DATA 29,18,40,67,79,68,69,32,49,
    50,56,41,598'BOYF
220 DATA 13,13,18,80,82,69,83,83,32,
    65,32,75,645'BOBG
230 DATA 69,89,32,70,79,82,32,67,79,
    68,69,83,819'BOSH
240 DATA 32,42,42,42,32,83,84,79,80,
    32,87,73,708'BOBI
250 DATA 76,76,32,69,88,73,84,146,0,
    32,225,255,1156'BRJJ
260 DATA 208,13,169,0,162,128,141,0,2,
    142,34,10,1009'BSGK
270 DATA 76,55,77,32,228,255,240,233,
    201,3,240,234,1874'BVHM
280 DATA 72,169,147,32,105,146,104,
    133,244,133,252,32,1569'BYDN
290 DATA 105,146,32,125,255,13,13,65,
    83,67,73,73,1050'BTCO
300 DATA 32,40,67,72,82,36,41,32,61,
    32,0,169,664'BOLF
310 DATA 0,166,252,32,50,142,165,252,
    201,20,208,10,1498'BVJH
320 DATA 169,148,166,241,141,0,4,142,
    0,216,32,125,1384'BURI
330 DATA 255,13,13,83,67,82,69,69,78,
    32,67,79,907'BPDI
340 DATA 68,69,32,40,80,79,75,69,41,
    32,61,32,678'BONJ
350 DATA 0,165,252,201,13,240,4,201,
    141,208,11,32,1468'BUWL
360 DATA 125,255,78,79,78,69,0,76,59,
    19,169,0,1007'BQTL
370 DATA 174,0,4,32,50,142,76,59,19,
    65,72,83,776'BOCM
```

**END**

by Louis F. Sander



GORDON KIBBEE

Thanks to a simple device my systems communicate by modem, *without* the use of the phone lines.

Like so many people these days, I have more than one computer. To be specific, my computer room is graced by three: a Commodore 128, a PC clone and a Tandy 100 laptop. Each has communications software and a modem, which I routinely use to download files from Q-link and CompuServe. Until recently, I couldn't exchange files between any of my own "incompatible" systems, even though they sit side by side on the same desk—I had no way to connect them through their modems.

Now, thanks to a simple device that anyone with $6 and an hour of time can build, my systems communicate by modem, *without* the use of the phone lines. This article tells how to build that device and provides detailed instructions for using it. I call the unit "Ma Sander," since it lets me bypass "Ma Bell."

### Building and Testing Ma Sander

Ma Sander connects two modems through a 9-volt battery, making them *think* they're connected through the phone lines. To build it, you need these four simple parts, plus the basic tools used in making electrical connections:

2 Surface-mount modular phone jacks
(Radio Shack #279-355)
1 Snap connector for 9-volt battery (Radio Shack #270-325)
1 9-volt battery with snap terminals (Radio Shack #23-583)

Radio Shack part numbers are shown for your convenience, but similar items will work just as well.

If you're familiar with telephone wiring, just connect the two jacks together green to green, tie off the yellow and black, and connect the battery between the two red terminals.

If you're *not* familiar with telephone wiring, follow these step-by-step instructions:

1. Look closely at your modular jacks. Some types have screw terminals, while others have wires with spade lugs or similar terminations. Whichever type you've got, it will have four colored wires or terminals—red, green, yellow and black. (We'll call them "wires" from now on.)

2. The yellow and black wires are not used in our application. Depending on the configuration of your jacks, they should be taped, cut off, ignored or otherwise taken out of the picture. This will leave you with four wires in all—two green and two red.

3. Connect the two green wires together. If the finished connection is exposed and free to move, tape it to avoid short circuits.

4. Connect the two red wires through the 9-volt battery. To do this, attach one wire from the battery connector to the red wire on one modular jack; attach the other battery wire to the red wire on the other jack.

5. When all wiring is done, examine your jacks to insure that you have:

- Two black wires disabled
- Two yellow wires disabled
- Two green wires connected together
- Two red wires, each attached to a battery wire. If everything is in order, your wiring is complete. Easy, wasn't it?

6. Now connect a 9-volt battery to the snap terminals. You don't need an on/off switch, since there's no load on the battery unless something is plugged into both jacks.

7. Finally, complete the job by wrapping everything into one neat package. If you've used Radio Shack #259-355 jacks, you can make a sandwich of them, with the wires and battery inside, held together with one long screw through their center holes. My own jacks were smaller, so I used masking tape to tie them and the battery together.

8. If you have access to two telephones with modular plugs, use them to test your unit. Plug the phones into Ma Sander, then see if you can talk between them. You won't be able to dial or ring, but you *should* be able to communicate from phone to phone. If you *can't*, carefully recheck your wiring.

### Preparing to Use the Unit

These instructions assume that you have some familiarity with using a modem and communications software. If you don't have such familiarity, Ma Sander can be your laboratory for gaining it.

As we said, Ma Sander replaces the commercial telephone lines to which modems are usually connected. If your modems and communications software are appropriately matched, passing data between two local computers will be almost like communicating with a bulletin board. The differences with Ma Sander are that you set one computer to originate the call and

> Anyone can build Ma Sander with $6 and an hour of time.

one to receive it, and you don't use automatic dialing and answering.

Every modem has two modes of operation: originate and answer. The appropriate mode is set by your communications software or, in some external modems, by a switch. For communications to be successful, one modem *must* be in originate mode and the other *must* be in answer mode.

Also, most communications software provides automatic dialing of outgoing calls and automatic answering of incoming ones. Since Ma Sander doesn't provide a dial tone, she may not work with automatic dialing. Since she doesn't provide a ringing signal, she *won't* work with automatic answering. Fortunately, most software has keyboard commands to manually initiate and answer calls.

Here are step-by-step instructions for preparing your computers to use Ma Sander. By following them carefully, you'll avoid the mysteries and frustrations that often accompany telecommunications work:

1. Decide which of your computers will originate the call and which one will answer it. Steps 2-7 apply to the Originating computer.

2. If the Originating computer's modem has an Originate/Answer switch, set it to the Originate position.

3. Load and run this computer's communications software.

4. Note the communications parameters that the software uses as defaults. (Later on, you'll have to ensure that the Answering computer uses the same parameters.) If in doubt, set 300 baud, 7 bit word length, no parity, 1 stop bit, and Half Duplex operation.

5. Consult the instruction manual to see if your software can originate a call without dialing a number. On my Tandy 100, I press the TERM key to do this. My Commodore program doesn't have the feature, while my PC's Everex BitCom software requires me to type "C" (for Connect) at the main menu, followed by + + +ATD <RETURN>. The + + +ATD is a standard modem command that may well work with your software. Be sure to use upper case letters, and don't be surprised if the characters are echoed twice onto your screen.

6. If your software *can't* originate a call without dialing, choose a dummy telephone number for your call.

7. Plug the originating computer's modem into either of Ma Sander's jacks. If the modem has two connections, use the one marked "Line."

8. The remaining steps apply to the Answering computer. If this computer's modem has an Originate/Answer switch, set it to the Answer position.

9. Load and run this computer's communications software.

10. Set the communications parameters to agree with those of the Originating computer (see Step 4). This is important since it ensures that the two computers are working in sync.

11. Using your software instruction book, determine how to answer a call manually. (Since Ma Sander provides no ringing signal, the answering computer will not automatically answer incoming calls—you have to *tell* it to answer, using the commands in your communications software package). On my Tandy 100 I press the TERM key to answer manually, while on my Commodore I press a special "pickup" key. With BitCom, I type "A" (for Answer), followed by + + +ATA <RETURN>. The latter is a common command where Hayes-compatible modems are involved; if you use it with your system, be sure to use upper case letters.

12. Plug this computer's modem into the other Ma Sander jack. If the modem has two telephone connections, use the one marked "Line."

## Initiating Communications

Once your computers have been prepared as described above, following these steps should put them into communication:

1. Use the Originating computer to originate a call. If you've used a dummy telephone number, wait until the last digit has been dialed. (You can usually see and/or hear it being dialed.)

2. Immediately after completing Step 1, answer the call on the Answering computer. (If you answer too early, the Originating computer may get the equivalent of a busy signal. If you wait too long, the Originating computer may time out and hang up.)

3. Type something on either computer and see if it appears on the screen of the other. If it does, you're in business. If it doesn't, don't be too upset—you've probably overlooked some simple step. Carefully repeat everything you've done so far, to see where you've gone wrong. If things still don't work, see the troubleshooting sections of this article, your software manuals and your modem manual.

Once you've established keyboard-to-screen communication, type some messages back and forth until you're comfortable with the system. The next step is to transfer files from memory or disk. Instructions for doing that are contained in your software manuals; when reading them, remember that sending a file is often called "uploading," while receiving a file is called "downloading." Your software may have several "protocols," or ways of performing these transfers; ASCII, buffer, Xmodem and Punter are some of the common ones. Due to Ma Sander's interference-free performance, the simplest protocol will probably work fine. As you did when you set communications parameters, be sure that the uploading and downloading protocols are identical. If you have trouble getting results, check the troubleshooting sections in this article and in your software manuals.

## Tips, Tricks and Troubleshooting

I did my first modem work in 1971, and I've spent dozens of hours debugging communications systems. It's frustrating work, because you seldom have a screen display to show what's going on. Nevertheless, it leads to very rewarding results. Here are some hints that will help you get those results:

1. It's useful to *listen* to the modem signals, since it helps you understand which computer is doing what. Such listening is easy if you use a duplex jack (Radio Shack #279-357) to connect a telephone in parallel with one of your modems. Plug the duplex jack into Ma Sander, and plug a modem and telephone into the jack.

With proper communications at 300 baud, you'll hear a high-pitched tone when the Answering modem answers, followed in a second or two by a lower tone from the Originating modem. Then you'll hear both tones at once, signifying that communication has been established. If you press a key, you should hear a chirping sound superimposed on the tones. At 1200 baud, you should hear the answering tone, followed by a hissing sound that doesn't seem to change as you press keys.

Once you've established communication, remove the phone or hang it up, since it can interfere with the data transmission.

*Continued on page 128*

by Gary V. Fields

# Tax Records 128

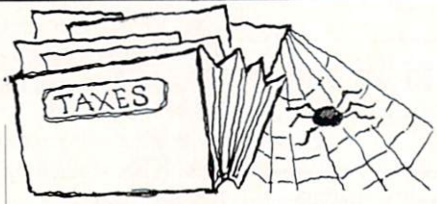
*A tax record keeping program for the 128*

Only two things in life are certain—death and taxes. While there is little we can do to soften the first, Tax Records 128 can take a lot of the sting out of the second. Tax Records 128 won't do your taxes for you, but it sure keeps records better than a shoe box.

Tax Records 128 uses an 80-column display to show the maximum amout of data on screen and to allow use of the 128's fast mode. Because of this, there are no provisions for using Tax Records 128 on a 40-column display monitor. Windows are used to separate input data from program-controlled information like menus, disk directories and help screens. The program's structure walks you through each option (create, update, load, merge, sort, printout, etc.). While managing a database, especially one which keeps track of your tax records, may sound threatening, this one is not. If while using the program you access an option accidentally, don't panic. All options which could affect data have built-in escape routines which allow you to escape unscathed before the operation is completed.

While creating the program, every effort was made to take advantage of BASIC 7.0's built-in features rather than poking a lot of code in the system. You should always be able to recover from an endless loop or execution problem by pressing both the RUN/STOP key and RESTORE. To prevent the user from accidentally breaking into the program while using Tax Records 128, several escape traps are set. These traps allow the user to stop a long directory from scrolling out of view. These are soft traps—if you press the RUN/STOP key once, a directory listing will stop, but if you tap it several times, the program assumes you really want to break into the program (return to BASIC) and does.

After you have correctly duplicated the listing and saved it to disk, you are ready to begin organizing your tax records. Simply type (from BASIC): RUN"Tax Records 128" <RETURN>. The program will load and begin.




BOB CLARK

## Using Tax Records 128

The program is divided into two modules, displayed as two main menus titled: ENTRY and WORK WITH FILE. The ENTRY screen is displayed with a red banner and the WORK WITH FILE screen uses a blue banner. This color scheme was used to visually alert the user to the menu in use. If you wish, you can change the COLOR commands in line 68, (the 3 in "COLOR5,3" sets type as red) and line 111, (the 15 in "COLOR5,15" sets type to blue).

The ENTRY screen is where you create and manage your tax files (all menu driven). You are prevented from moving to the second screen, WORK WITH FILE, until you have created a file and have loaded it into memory. The WORK WITH FILE screen allows you to examine, sort and print (to screen, printer or both) the information in your tax files. It also keeps running totals of both your income and deductions and the sub-categories of both.

The program is designed to handle a total of 500 records (each with six fields). This size should be more than adequate for most households (I average around 200 per year). To increase the number of records Tax Records 128 can handle, change the number in the DIM statement found in line six of the listing. The default value is 500. (Do not change the value in the ni$(40), same line, which controls the number of characters which can be input to a field. Changing this value will scramble the program's structure and display.)

## The Entry Screen

You begin each session of Tax Records 128 at the ENTRY screen. The eleven options you can access from a single key are:

- c — **create** a file
- m — **merge** two existing files
- l — **load** an existing file
- a — **add** to an existing file
- d — **delete** records from the file in memory
- s — **save** the file in memory to disk
- u — **update** (change) records on the file in memory
- F1 — go to WORK WITH FILE screen, IF a file is in memory
- F2 — scratch a file from the disk
- F7 — list the disk's directory
- HELP key — list help screens

## Creating a File

The first thing you'll need to do is create a file. A block will appear, and you'll be prompted to enter a filename. Once a file has been opened, you are ready to enter your tax information. The program is structured to accept only legal input. First you'll be asked if the first entry will be for "i" (Income) or "d" (Deduction). This Category prompt will accept only "i," "d," or "!" as input. If you input "!," the disk file is closed, and you are returned to the first menu.

If you entered "i" (Income) and pressed RETURN, a new prompt appears. This prompt wants you to label the type of income used: either "w" (Wages), "f" (Farm earnings), "d" (Dividend), "i" (Interest), "r" (Rental), "b" (Business) or "o" (Other income) for the Subcategory.

If you choose "d" (Deduction) the Subcategory prompt will allow "i" (Interest), "m" (Medical), "e" (Education), "b" (Business), "t" (Tax), "c" (Contribution), "r" (Retirement fund) or "o" (Other expense).

The program has checks to prevent you from entering wages or farm earnings as a deduction, or education, tax or medical as income. The one character you should avoid using while inputing data is the comma. BASIC 7.0 recognizes the comma as a screen divider—thus, if it is used, BASIC's interpreter will attempt to divide your input into sections divided by the comma. The consequences of such an error would be incomplete entry of data and an error message printed to the screen.

Next you will be prompted to enter the "Source" of the money. This input must be between four and 20 characters.

The next prompt, labeled NOTE/DATE, was originally restricted to dates, but at the suggestion of my accountant I opened it up to allow any input.

The fifth field, RECORD/RECEIPT, is for receipt information. Here you would input a check or receipt number, bank account, cash or none (if there is no receipt). Take my accountant's advice—put something here so you can prove the entry later if "you know who" ever asks to see your tax records.

The AMOUNT is last. Just put in the amount numbers. *Do not* use a dollar sign ($); it will be generated by the program when the information is dumped to the screen or a printer. *Do* put a decimal point to separate dollars from cents. The pro-

gram won't let you leave that field until it sees a decimal.

Before the record is stored to disk, you will be asked if all the input is correct. The cursor will then return to the first field CATEGORY (i) (d) (!). If you answered "n" because the record was incorrect, simply press RETURN until you land on the field you want to change. After you have changed the erroneous information, continue to press RETURN until you are back to the final prompt.

After you have filled all the fields in a record, the cursor always returns to the first field, so you can either continue entering data or signal you are finished. To end a session of creating a file, you input "!" (exclamation point) on the first prompt.

During the session of creating a file, the data in the fields remains until you either type over it or exit the option. There is a good reason for this no-clear feature. Much of the information you will be entering will be repetitive information (paycheck, medical, bank statements, bills, etc.). By not clearing the fields, information which is identical can be entered with a simple press of the RETURN key, and other fields which change only slightly (dates for example) can be adjusted and entered with a minimum of keystrokes.

While you are entering information, your disk drive's activity light will glow constantly, but the drive will spin only when its buffer is full and when you close the file.

After you've created a file, you can move on to Tax Records 128's other features. Before we describe the WORK WITH FILE options let's finish the options available from the ENTRY screen.

The function keys have been redefined. Pressing the F7 key will open a window on the right side of the screen and display the directory of a disk in drive 8. The F1 key toggles the program between the two main screens: ENTRY and WORK WITH FILE. The F2 key allows you to scratch an entire file (or program) from the current disk. Pressing the HELP key summons information on the options available. (The HELP feature is automatically summoned when you are entering or changing a file.) The remaining function keys have no effect on the program.

To load a file which is stored on disk, you simply press the "l" key (Load) and input the name of the file. The data will be displayed on the screen as it is recalled, and the last line will note the exact record count.

If you want to add information to a file you have a choice of methods. You can either create another file and merge the two, or you can add information directly. To add to an existing file, simply press "a." Prompts similar to those used during the creation procedure will walk you through the action.

To merge two files into one, simply press "m" from the menu and follow the prompts. The disk directory will appear automatically to aid you in selecting and correctly spelling the files you want to combine. The data of one file (file to merge) will be attached to the end of the (first selected) master file. When the operation is finished, the master file will contain the information held, plus the information existing on the merge file. Remember, the merge action affects only those files on disk, not the file (if one has been loaded) currently in memory. If you want to view or work with the combined file, you'll need to load it into memory (the "l" command) first.

Deleting ("d") or updating ("u") a record from a file is simple. After you select the option ("d" or "u"), the program will ask for some information so it can locate the specific record. After you input the data, the program will search the entire file (in memory) for a match. Once you locate the desired record you can delete it or make changes and resave it. (*Remember:* Tax Records 128 is case sensitive, "B" and "b" are two entirely different characters, so when searching for a record be sure to use upper and lower case type just as you did when you first entered the data.)

The last option you can select from this menu is "s" (Save). The program includes an internal check which will remind you to resave the file (if it has been altered) if you attempt to move to the WORK WITH FILE screen. It's important to be sure to save a file which has been altered before turning the system off. This precaution does not apply to files which have been created, added to or merged—since those activities are written directly on the disk.

## Working with the File Screen

This screen displays the name of the file in memory and allows you to recall either the entire file or only specific data. This is very similar to the ENTRY screen. To activate an option from the WORK WITH FILE menu, press:

t — **Total** review of all the data in a file—deductions and income

1 — **Category** review all deductions or all incomes

2 — **Subcategory** review all data in a selected subcategory using either Category INCOME or Category DEDUCTIONS as a factor. If Category INCOME is selected, the user can review data stored under: **Wages, Farm, Dividends Interest, Rental, Business, Other.** If Category DEDUCTION is selected, the user can review data stored under: **Interest, Medical, Education, Business, Tax, Contributions, Other.**

3 — **Source** review all data, either INCOME or DEDUCTION from a common source.

4 — **Note/Date** review all data, either INCOME or DEDUCTION with a common Note/Date field.

5 — **Record** review all data, either INCOME or DEDUCTION with a common REC/RECEIPT field.

6 — **Amount** review all data, either INCOME or DEDUCTION with a common dollar amount.

q — **quit** allows the user to quit the program and closes all files.

F1 — Returns you to the ENTRY SCREEN

F7 — Displays the disk's directory

<HELP> — Displays help screen window

There are also SAVE, RENAME & SAVE, and ESCAPE options. This screen appears any time you alter a file and attempt to move from the ENTRY (create, alter, disk command) SCREEN to the WORK WITH FILE SCREEN.

[NOTE: The line which opens a channel to your printer is in line 45. The program uses the traditional code for a CBM 1525 printer. This was selected since most printer interfaces support that emulation. If yours does not, this is the line to adjust to get your printer online.]

The key to successfully using Tax Records 128 is organizing your input. Since the program allows both upper and lower case, you need to standardize your input. For instance, if you use "Dr. Moore" as a source one day, but use "DR. MOORE" other times, you will not be able to sort all bills paid to this doctor with a single search, since the program will read these two case spellings as being different.

If you use an accountant who charges by the hour, these detailed printouts will save them time and you money. On the other hand, if you prepare your own tax forms the help Tax Records 128 offers could save you not only time and money—but also your hair. Most people will find the program takes a lot of the hair-pulling frustration out of paying taxes. So—have a happy tax day. C

*Continued on pg. 84*

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Tax Records 128

```
1 REM  TAX RECORDS 128 / 8Ø COLUMN
  DISPLAY G.FIELDS V1.1'BQGK
2 FAST:COLOR 6,1:PRINT
  CHR$(27)CHR$(85)CHR$(14)CHR$(11)
  'HWQJ
3 FOR X=3 TO 8:KEY X,"":NEXT
  :KEY 1,CHR$(133):KEY 2,CHR$(137)
  :KEY 7,CHR$(136)'LGPP
4 CLOSE 15:OPEN 15,8,15:U$=CHR$(145)
  :RT$=CHR$(18):RO$=CHR$(146):VP=1
  :FL=Ø:L$=CHR$(157):TE$=CHR$(7)'OICY
5 FOR X=Ø TO 18:OS$=OS$+CHR$(13)
  :NEXT'HQIL
6 DIM CA$(5ØØ),SC$(5ØØ),SO$(5ØØ),
  DA$(5ØØ),RE$(5ØØ),AM$(5ØØ),
  NI$(4Ø)'BLJQ
7 GOTO 68'BCVF
8 FOR X=Ø TO 79:PRINT CHR$(163);
  :NEXT X'GNMM
9 PRINT OS$:FOR X=Ø TO 79
  :PRINT CHR$(164);:NEXT X:RETURN'ISFQ
1Ø WINDOW Ø,3,51,21,1:RETURN'CNLA
11 WINDOW Ø,3,78,21,1:RETURN'CNUB
12 PRINT#1,CA$:PRINT#1,SC$:PRINT#1,SO$
   :PRINT#1,DA$:PRINT#1,RE$
   :PRINT#1,AM$:RETURN'HLEK
13 COLOR 5,3:PRINT TE$RT$" [SHFT A]
   NY [SHFT K]EY [SHFT T]O [SHFT C]
   ONTINUE ":COLOR 5,2:GET KEY A$
   :RETURN'GSTQ
14 PRINT RT$"INITIALIZING DISK"
   :PRINT#15,"IØ":RETURN'DIOJ
15 PRINT CHR$(19):PRINT:PRINT
   :RETURN'FHLG
16 PRINT RT$" [SHFT S]TATUS: "DS$
   :RETURN'CHCI
17 V4=LEN(AM$(C)):V5=78-V4
   :PRINT CA$(C);" ";SC$(C);" ";
   SO$(C);TAB(26)DA$(C);
   :PRINT TAB(48)RE$(C);'IMQX
18 PRINT TAB(69)"$";TAB(V5)AM$(C)
   :AM=VAL(AM$(C)):LC=LC+1
   :IF ZA=1 THEN LC=Ø'LMFU
19 IF CA$(C)="I"THEN T1=T1+AM
   :GI=GI+AM'HTLP
2Ø IF CA$(C)="D"THEN T2=T2+AM
   :GD=GD+AM'HTXH
21 IF P$="Y"THEN H1=LEN(SO$(C))
   :H2=LEN(DA$(C)):H3=LEN(RE$(C))
   :V1=21-H1:V2=42-(H2+H1+V1)
   :V3=62-(H3+H2+H1+V1+V2)'VVDE
22 IF P$="Y"THEN PRINT#2,CA$(C);"..";
   SC$(C);"..";SO$(C);SPC(V1)DA$(C);
   SPC(V2)RE$(C);'GWEP
23 IF P$="Y"THEN V4=1Ø-V4
   :PRINT#2,SPC(V3)"$";
   SPC(V4)AM$(C)'IYLM
24 IF LC>13 THEN LC=Ø:GOSUB 13'FKNH
25 RETURN'BAQD
26 IF P$="Y"THEN PRINT#2
   :PRINT#2,"[SHFT T]OTAL [SHFT I]
   NCOME :";:PRINT#2,USING"$#########
   .##";T1:PRINT#2,"[SHFT G]RAND
   [SHFT I]NCOME :";:PRINT#2,
   USING"$#########.##";GI'KXAE
27 IF P$="Y"THEN PRINT#2,"[SHFT T]
   OTAL [SHFT D]ED.[SPACE3]:";
   :PRINT#2,USING"$#########.##";T2
   :PRINT#2,"[SHFT G]RAND [SHFT D]ED
   [SPACE4]:";:PRINT#2,
   USING"$#########.##";GD'JVXD
28 RETURN'BAQG
29 PRINT TE$"[SHFT C]ATEGORY (I) OR
   (D)":'BEXN
3Ø GET KEY CA$:IF CA$="I"THEN 32'FJHE
31 IF CA$<>"D"THEN PRINT U$;
   :GOTO 3Ø'GJUF
32 PRINT"[SHFT S]OURCE[SPACE2]
   (MINIMUM 4 LETTERS)":LE=2Ø
   :GOSUB 278:SO$=C$:SCNCLR'FQXP
33 E=Ø:FOR C=1 TO N'EGYF
34 IF CA$<>CA$(C)OR LEFT$(SO$,
   4)<>LEFT$(SO$(C),4)THEN 39:'JETP
35 PRINT TE$RT$" [SHFT C]ORRECT
   [SHFT D]ATA (Y/N) ":GOSUB 17'CJYN
36 GET KEY X$'CCWH
37 IF X$="Y"THEN 41'DEFJ
38 SCNCLR'BAGH
39 NEXT C'BBVI
4Ø PRINT TE$RT$"[SHFT R]ECORD [SHFT N,
   SHFT O,SHFT T] [SHFT F]OUND"
   :SLEEP 1:E=1'DMOL
41 RETURN'BAQB
42 TRAP 44'BCMD
43 WINDOW 52,3,78,21,1:DIRECTORY'COPH
44 A$="":GOSUB 1Ø:RETURN'DGHH
45 CLOSE 2:PRINT"[SHFT P]
   RINT OUT (Y/N)?":LE=1:GOSUB 278
   :P$=C$:IF P$="Y"THEN BEGIN
   :OPEN 2,4,7'KALW
46 PRINT#2,"[SHFT F]ILE: ";N$:PRINT#2
   :PRINT#2,"[SHFT S]EARCH
   :";A$;" 1=[SHFT C]ATEGORY ";'DPXS
47 PRINT#2,"2=[SHFT S]UB [SHFT C]
   ATEGORY 3=[SHFT S]OURCE 4=[SHFT N]
   OTE/[SHFT D]ATE 5=[SHFT R]ECORD 6=
   [SHFT A]MOUNT":PRINT#2'CEXB
48 PRINT#2,"[SHFT C] [SHFT S]UB
   [SHFT S]OURCE.............
   [SHFT N]OTE/[SHFT D]ATE..........
   [SHFT SPACE,SHFT R]ECORD..........
   ....[SHFT A]MOUNT...":BEND'CEBG
49 RETURN'BAQJ
5Ø J=Ø:IF B$="I"AND CA$(C)=B$THEN J=1
   :RETURN'IQQJ
51 IF B$="D"AND CA$(C)=B$THEN J=1
   :RETURN'HNJJ
52 IF B$="B"THEN J=1:RETURN'FFEH
53 RETURN'BAQE
54 PRINT RT$"I"RO$"NCOME":PRINT"OR"
   :PRINT RT$"D"RO$"EDUCTION"'DOEP
55 PRINT'BACG
56 GET KEY B$'CCAJ
57 IF B$="I"THEN PRINT"[SHFT I]
   NCOME SEARCH:":RETURN'FDBQ
58 IF B$="D"THEN PRINT"[SHFT D]
```

```
    EDUCTION SEARCH:":RETURN'FDVS
59 IF B$<>"D"THEN 56'EEVN
60 PRINT TE$CHR$(7)"FINISHED"'CGVG
61 GOSUB 26'BCTD
62 PRINT RT$"[SHFT T]OTAL [SHFT I]
   NCOME[SPACE11]:";:PRINT
   USING"$#########.##";T1
   :PRINT RT$"[SHFT G]RAND [SHFT T]
   OTAL [SHFT I]NCOME[SPACE5]:";
   :PRINT USING"$#########.##";GI'GRIE
63 PRINT RT$"[SHFT T]OTAL [SHFT D]
   EDUCTIONS[SPACE7]:";
   :PRINT USING"$#########.##";T2
   :PRINT RT$"[SHFT G]RAND [SHFT T]
   OTAL [SHFT D]EDUCTIONS :";
   :PRINT USING"$#########.##";GD'GRQH
64 IF VP>0 THEN CLOSE 2'EENJ
65 GOSUB 13:RETURN'CDJI
66 PRINT TE$:RETURN'CEEK
67 PRINT TE$"[SHFT A]RE YOU SURE
   (Y/N)?":RETURN'CEKQ
68 WINDOW 0,0,79,24,1:COLOR 5,3
   :PRINT RT$"BY [SHFT G].[SHFT F]
   IELDS[SPACE21,SHFT T,SHFT A,SHFT X]
    [SHFT R,SHFT E,SHFT C,SHFT O,
   SHFT R,SHFT D,SHFT S] 128[SPACE33,
   WHITE]":COLOR 5,2'EYJM
69 PRINT"[SPACE9,SHFT F,SHFT I,SHFT L,
   SHFT E] [SHFT C,SHFT O,SHFT M2,
   SHFT A,SHFT N,SHFT D,SHFT S]
   :[SPACE3]";'BBTX
70 PRINT"[RVS]C[RVOFF]REATE [RVS]L
   [RVOFF]OAD [RVS]A[RVOFF]DD TO [RVS]
   U[RVOFF]PDATE [RVS]D[RVOFF]ELETE
   [RVS]M[RVOFF]ERGE [RVS]S[RVOFF]
   AVE"'BAQT
71 GOSUB 8'BBVE
72 PRINT"[RVS,SHFT F]1[RVOFF] [SHFT W]
   ORK WITH FILE IN MEMORY[SPACE4,RVS,
   SHFT F]2[RVOFF] [SHFT S]CRATCH A
   [SHFT F]ILE[SPACE4,RVS]";'BBIW
73 PRINT"[SHFT F]7[RVOFF] [SHFT D]
   IRECTORY[SPACE5,RVS,SHFT H,SHFT E,
   SHFT L,SHFT P,RVOFF] SCREEN"
   :GOSUB 10'CDJT
74 SCNCLR:LC=0'CEVJ
75 TRAP 90'BCNJ
76 GET KEY A$'CCEK
77 IF A$=CHR$(136)THEN GOSUB 42
   :GOTO 75'GMDQ
78 IF A$="C"THEN ZA=0:GZ=0
   :GOTO 184'GNNS
79 IF A$="M"THEN 245'DFYP
80 IF A$=CHR$(137)THEN 168'EKEI
81 IF A$="L"THEN ZA=1:GZ=0
   :GOTO 173'GNVM
82 IF A$="H"THEN GET A$
   :IF A$="E"THEN FOR X=0 TO 3:GET A$
   :NEXT:GOSUB 261'NSDS
83 IF ZA<>1 THEN PRINT U$TE$"[SHFT N,
   SHFT O] FILE IN MEMORY":SLEEP 1
   :SCNCLR:GOTO 75'IPTV
84 IF A$="A"THEN 221'DFGL
85 IF A$="D"THEN 232'DFLM
86 IF A$="S"THEN 92'DEIN
87 IF A$="U"THEN 238'DFJO
88 IF A$=CHR$(133)THEN 91'EJWQ
89 GOTO 75'BCTN
90 GOTO 68'BCVF
91 IF WF<>1 THEN 110'EGUJ
92 PRINT RT$N$" HAS BEEN CHANGED"'BFJN
93 PRINT"[SHFT T]O AVOID POSSIBLE
   LOSS OF DATA"'BAGR
94 PRINT"YOU SHOULD SAVE IT TO
   DISK"'BAEQ
95 PRINT:PRINT RT$"[SHFT P,SHFT R,
   SHFT E,SHFT S2]:[SPACE24]"'CEFT
96 PRINT"'S' TO [SHFT S]AVE USING
   : "N$'BCBR
97 PRINT TE$"'R' TO [SHFT R]
   ENAME FILE AND THEN SAVE"'BDBV
98 PRINT TE$"<[SHFT E,SHFT S,SHFT C]
   > TO [SHFT E]SCAPE WITHOUT
   RESAVING FILE"'BDNB
99 GET KEY A$:IF A$="S"THEN 104'FIGT
100 IF A$=CHR$(27)THEN SCNCLR
    :GOTO 110'GKHB
101 IF A$<>"R"THEN 99'EEQY
102 PRINT TE$"[SHFT I]NPUT FILE NAME
    :"'BDVD
103 LE=10:GOSUB 278:N$=C$'DNIC
104 OPEN 1,8,2,"@0:"+N$+",S,W"'DIEE
105 GOSUB 16:IF DS<>0 THEN CLOSE 1
    :GOTO 102'HLCG
106 FOR C=1 TO N'DDCD
107 PRINT#1,CA$(C):PRINT#1,SC$(C)
    :PRINT#1,SO$(C):PRINT#1,
    DA$(C)'EKML
108 PRINT#1,RE$(C):PRINT#1,AM$(C)
    :NEXT C'DTII
109 CLOSE 1:GOSUB 16:PRINT N$"
    [SHFT S]AVED":WF=0:GOSUB 13'FONM
110 NN=47-LEN(N$):FL=1:ZA=0:T1=0:T2=0
    :GI=0:GD=0:P$="N":LC=0'LONN
111 WINDOW 0,0,79,24,1:COLOR 5,15
    :PRINT RT$"[SHFT F]ILE [SHFT I]N
    [SHFT M]EMORY : ";N$;
    :FOR X=0 TO NN:PRINT RT$" ";:NEXT
    :PRINT RT$"[SHFT T,SHFT A,SHFT X]
     [SHFT R,SHFT E,SHFT C,SHFT O,
    SHFT R,SHFT D,SHFT S] 128"
    :COLOR 5,2'KTWD
112 PRINT" [RVS,SHFT T,RVOFF,SHFT O,
    SHFT T,SHFT A,SHFT L] [SHFT R,
    SHFT E,SHFT V,SHFT I,SHFT E,
    SHFT W] - OR -[SPACE2,RVS]1[RVOFF,
    SHFT C]ATEGORY [RVS]2[RVOFF,
    SHFT S]UB [SHFT C]ATEGORY [RVS]3
    [RVOFF,SHFT S]OURCE [RVS]4[RVOFF,
    SHFT N]OTE/[SHFT D]ATE [RVS]5
    [RVOFF,SHFT R]ECORD [RVS]6[RVOFF,
    SHFT A]MOUNT"'BAUI
113 GOSUB 8'BBVY
114 PRINT"[RVS,SHFT F]1[RVOFF]
    [SHFT R]ETURN TO [SHFT E]
    NTRY SCREEN[SPACE10,RVS,SHFT F]7
    [RVOFF,SPACE2,SHFT D]IRECTORY
    [SPACE8,RVS]Q[RVOFF]UIT[SPACE9,
    RVS,SHFT H,SHFT E,SHFT L,SHFT P,
    RVOFF] SCREEN"'BAVA
```

```
115 GOSUB 10'BCMB
116 TRAP 130'BDGD
117 GET KEY A$'CCEE
118 IF A$="Q"THEN 300'DFUH
119 IF A$="T"THEN 131'DFAI
120 IF A$="1"THEN 143'DFTA
121 IF A$="2"THEN 148'DFZB
122 IF A$="3"THEN 152'DFVC
123 IF A$="4"THEN 156'DFAD
124 IF A$="5"THEN 160'DFWE
125 IF A$="6"THEN 164'DFBF
126 IF A$="H"THEN GET A$
    :IF A$="E"THEN FOR X=0 TO 3:GET A$
    :NEXT:GOSUB 261'NSDP
127 IF A$=CHR$(136)THEN GOSUB 42
    :GOTO 116'GNWK
128 IF A$=CHR$(133)THEN ZA=1:FL=0
    :GOTO 68'HRJN
129 GOTO 116'BDHH
130 SCNCLR:GOTO 110'CEKA
131 VP=0'BDKA
132 PRINT TE$TE$RT$" [SHFT T,SHFT O,
    SHFT T,SHFT A,SHFT L] [SHFT R,
    SHFT E,SHFT V,SHFT I,SHFT E,
    SHFT W] ":PRINT:GOSUB 45
    :GOTO 136'ERAP
133 PRINT GG$:T1=0:T2=0:LC=0
    :IF P$="Y"THEN PRINT#2:PRINT#2,GG$
    :PRINT#2'KCMN
134 FOR C=1 TO N:IF CA$(C)=GH$AND
    SC$(C)=LEFT$(GG$,1)THEN GOSUB
    17'KDNO
135 NEXT C:GOSUB 60:RETURN'DFKF
136 GH$="I":GG$="WAGES":GOSUB 133
    :GG$="FARM":GOSUB 133
    :GG$="DIVIDENDS":GOSUB 133'HCKT
137 GG$="INTEREST":GOSUB 133
    :GG$="RENTAL":GOSUB 133
    :GG$="BUSINESS":GOSUB 133
    :GG$="OTHER":GOSUB 133'IGRY
138 GH$="D"'BDTH
139 GG$="INTEREST":GOSUB 133
    :GG$="MDEICAL":GOSUB 133
    :GG$="EDUCATIONAL":GOSUB 133'GXOX
140 GG$="TAX":GOSUB 133
    :GG$="CONTRIBUTION":GOSUB 133'EPOJ
141 GG$="RETIREMENT FUND":GOSUB 133
    :GG$="BUSINESS":GOSUB 133
    :GG$="OTHER":GOSUB 133'GXPR
142 GOTO 110'BDBC
143 PRINT TE$RT$" [SHFT C]ATEGORY
    [SHFT S]EARCH ":GOSUB 45'CJJK
144 LE=1:PRINT"[SHFT I]NPUT 'I' OR 'D'
    :":GOSUB 278'DIXL
145 IF C$<>"I"THEN IF C$<>"D"THEN
    SCNCLR:GOTO 143'KIDM
146 WC$=C$:FOR C=1 TO N
    :IF CA$(C)=WC$THEN GOSUB 17'IVHO
147 NEXT C:GOSUB 60:VP=1:GOTO 110'EMKL
148 PRINT TE$RT$" [SHFT S]UB [SHFT C]
    ATEGORY [SHFT S]EARCH ":GOSUB 45
    :GOSUB 54'DMRS
149 LE=1:GOSUB 278:WC$=C$:FOR C=1 TO N
    :GOSUB 50'HUKQ
150 IF CA$(C)=B$AND SC$(C)=WC$THEN
    GOSUB 17'GTGH
151 NEXT C:GOSUB 60:GOTO 110'DIUE
152 PRINT TE$RT$" [SHFT S]OURCE
    [SHFT S]EARCH (FIRST 4 LETTERS) "
    :GOSUB 45:GOSUB 54'DMSQ
153 LE=4:GOSUB 278:WC$=C$:FOR C=1 TO N
    :GOSUB 50'HUNL
154 IF CA$(C)=B$AND LEFT$(SO$(C),
    4)=LEFT$(WC$,4)THEN GOSUB 17'ICEO
155 NEXT C:GOSUB 60:GOTO 110'DIUI
156 PRINT TE$RT$" [SHFT N,SHFT O,
    SHFT T,SHFT E] / [SHFT D,SHFT A,
    SHFT T,SHFT E] (FIRST 2 LETTERS) "
    :GOSUB 45:GOSUB 54'DMPW
157 LE=2:GOSUB 278:WC$=C$'DNML
158 FOR C=1 TO N:GOSUB 50
    :IF CA$(C)=B$AND LEFT$(DA$(C),
    2)=WC$THEN GOSUB 17'LFBV
159 NEXT C:GOSUB 60:GOTO 110'DIUM
160 PRINT TE$RT$" [SHFT R,SHFT E,
    SHFT C]/[SHFT R,SHFT E,SHFT C,
    SHFT E,SHFT I,SHFT P,SHFT T]
    [SHFT S]EARCH ":GOSUB 45
    :GOSUB 54'DMJQ
161 LE=20:GOSUB 278:WC$=C$'DOEH
162 FOR C=1 TO N:GOSUB 50
    :IF CA$(C)=B$AND RE$(C)=WC$THEN
    GOSUB 17'KBGO
163 NEXT C:GOSUB 60:GOTO 110'DIUH
164 PRINT TE$RT$" [SHFT A,SHFT M,
    SHFT O,SHFT U,SHFT N,SHFT T]
    [SHFT S]EARCH ([SHFT N]O $) "
    :GOSUB 45:GOSUB 54'DMES
165 LE=8:GOSUB 278:WC$=C$:FOR C=1 TO N
    :GOSUB 50'HURO
166 IF CA$(C)=B$AND AM$(C)=WC$THEN
    GOSUB 17'GTXO
167 NEXT C:GOSUB 60:GOTO 110'DIUL
168 LE=16:PRINT TE$RT$" [SHFT S]
    CRATCH A FILE"'CLNR
169 PRINT"[SHFT N]AME [SHFT F]ILE TO
    [SHFT S,SHFT C,SHFT R,SHFT A,
    SHFT T,SHFT C,SHFT H]":GOSUB 278
    :NN$=C$'DKPX
170 GOSUB 67:GET KEY A$
    :IF A$<>"Y"THEN GOTO 74'IKGJ
171 GOSUB 14:SCRATCH(NN$)'CIVG
172 GOSUB 16:GOSUB 13:GOTO 74'DIBH
173 LE=16:PRINT"[SHFT R,SHFT E,SHFT C,
    SHFT A,SHFT L2] [SHFT F,SHFT I,
    SHFT L,SHFT E]":GOSUB 278
    :N$=C$'EOQS
174 GOSUB 11'BCNG
175 OPEN 1,8,2,"0:"+N$+",S,R":C=0
    :GOSUB 16'FOAO
176 IF DS<>0 THEN CLOSE 1:ZA=0
    :GOTO 183'HMRP
177 WF=0:C=0'CGVL
178 C=C+1'CDTM
179 INPUT#1,CA$(C),SC$(C),SO$(C),
    DA$(C),RE$(C),AM$(C):S=ST'CWNW
180 GOSUB 17'BCTD
181 IF S=0 GOTO 178'DFHG
```

```
182 N=C:CLOSE 1:PRINT"TOTAL COUNT
    : "N" RECORDS"'DGHO
183 GOSUB 13:SCNCLR:WINDOW 0,3,51,21,1
    :GOTO 74'ETJM
184 PRINT RT$"[SHFT C]REATE A [SHFT N]
    EW [SHFT F]ILE"'BDEO
185 LE=10:PRINT TE$"[SHFT N]AME
    [SHFT N]EW [SHFT F]ILE":GOSUB 278
    :N$=C$:SCNCLR'FSUU
186 CLOSE 1,8,2:OPEN 1,8,2,"@0
    :"+N$+",S,W"'EOEQ
187 IF DS<>0 THEN COLOR 5,3
    :PRINT TE$RT$"[SHFT D]RIVE
    [SHFT E,SHFT R2,SHFT O,SHFT R]
    :"DS$:COLOR 5,2:PRINT"[SHFT A]NY
    [SHFT K]EY [SHFT T]O [SHFT C]
    ONTINUE":GET KEY A$:SCNCLR
    :GOTO 185'MECO
188 GOSUB 261'BDMM
189 GOSUB 10'BCMM
190 PRINT RT$"[SPACE7,SHFT T]O
    [SHFT C,SHFT L,SHFT O,SHFT S,
    SHFT E] FILE, INPUT '!' AS
    [SHFT C]ATEGORY[SPACE8]"'BDUT
191 PRINT RT$"[SPACE12,SHFT R,SHFT E,
    SHFT M,SHFT E,SHFT M,SHFT B,
    SHFT E,SHFT R]: [SHFT D]O [SHFT N,
    SHFT O,SHFT T] USE [SHFT C,SHFT O,
    SHFT M2,SHFT A,SHFT S,SPACE12]
    "'BDEA
192 INPUT"[SPACE8,SHFT C,SHFT A,
    SHFT T,SHFT E,SHFT G,SHFT O,
    SHFT R,SHFT Y] (I) (D) (!)";
    CA$'BEOQ
193 IF CA$="I"THEN 196'DGRK
194 IF CA$="!"THEN CLOSE 1
    :PRINT TE$"[SHFT F]ILE [SHFT C,
    SHFT L,SHFT O,SHFT S,SHFT E,
    SHFT D]":GOTO 68'GLTU
195 IF CA$<>"D"THEN PRINT U$;
    :GOTO 192'GKVP
196 INPUT"[SPACE16,SHFT S]UB [SHFT C]
    ATEGORY";SC$'BELR
197 IF CA$="D"THEN 201'DGYO
198 IF SC$="W"OR SC$="F"OR SC$="D"OR
    SC$="I"OR SC$="R"THEN 204'LSLA
199 IF SC$="B"OR SC$="O"THEN 204'FJBS
200 PRINT U$;:GOTO 196'CHAX
201 IF SC$="I"OR SC$="M"OR SC$="E"OR
    SC$="T"OR SC$="C"THEN 204'LSBK
202 IF CA$="D"AND SC$="R"OR SC$="B"OR
    SC$="O"THEN 204'JPJI
203 PRINT U$;:GOTO 196'CHAB
204 INPUT"[SPACE7,SHFT S,SHFT O,
    SHFT U,SHFT R,SHFT C,SHFT E]
     (MIN/4 MAX/20)";SO$'BECK
205 IF LEN(SO$)<4 OR LEN(SO$)>20 THEN
    PRINT U$;:GOTO 204'JUDL
206 INPUT"[SHFT N,SHFT O,SHFT T,
    SHFT E]/[SHFT D,SHFT A,SHFT T,
    SHFT E] (MAX/20 [SHFT N,SHFT O]
     COMMAS)";DA$'BEMP
207 IF LEN(DA$)<1 OR LEN(DA$)>20 THEN
    PRINT U$;:GOTO 206'JUAM
208 INPUT"[SPACE5,SHFT R,SHFT E,
    SHFT C,SHFT O,SHFT R,SHFT D]/
    [SHFT R,SHFT E,SHFT C,SHFT E,
    SHFT I,SHFT P,SHFT T] (MAX/20)";
    RE$'BEVS
209 IF LEN(RE$)<1 OR LEN(RE$)>20 THEN
    PRINT U$;:GOTO 208'JUHP
210 INPUT"[SPACE7,SHFT A,SHFT M,
    SHFT O,SHFT U,SHFT N,SHFT T] (
    [SHFT N,SHFT O] $ SYMBOLS)";
    AM$'BEKI
211 IF LEFT$(AM$,1)<CHR$(46)OR
    LEFT$(AM$,1)>CHR$(57)OR
    LEN(AM$)>8 THEN PRINT U$;
    :GOTO 210'OKHO
212 IF LEFT$(RIGHT$(AM$,3),
    1)<>CHR$(46)THEN PRINT U$;
    :GOTO 210'JWQJ
213 PRINT TE$"[SHFT I]S THIS CORRECT
    (Y/N)":GET KEY A$:IF A$<>"Y"THEN
    IF A$<>CHR$(13)THEN A$="N"'NRYS
214 IF A$=CHR$(13)THEN A$="Y"'FIDG
215 PRINT RT$A$TE$TE$TE$'BOEF
216 IF A$="N"THEN PRINT CHR$(19)
    :PRINT'GHII
217 IF A$="N"THEN 192'DFBH
218 IF GZ=1 THEN RETURN'EDRI
219 GOSUB 12'BCOG
220 A$="N":GOTO 216'CGSA
221 GOSUB 261'BDMA
222 PRINT RT$"[SHFT A,SHFT D2]
    [SHFT D]ATA TO ";N$'BGEG
223 CLOSE 1:APPEND#1,(N$),D0,U8'CQDF
224 GZ=1:GOSUB 191'CHEE
225 IF CA$="!"THEN 231'DGQG
226 GOSUB 12'BCOE
227 N=N+1:CA$(N)=CA$:SC$(N)=SC$
    :SO$(N)=SO$:DA$(N)=DA$:RE$(N)=RE$
    :AM$(N)=AM$'INFY
228 PRINT TE$"ADDED[SPACE4]"
    :PRINT U$'CGUK
229 PRINT TE$"[SHFT A]DD [SHFT M]
    ORE (Y/N)":GET KEY K$
    :PRINT RT$K$'EMUR
230 IF K$="Y"THEN PRINT CHR$(19)
    :GOTO 224'GKJF
231 CLOSE 1:GOTO 74'CEEB
232 GOSUB 11:COLOR 5,3:PRINT RT$"
    [SHFT D,SHFT E,SHFT L,SHFT E,
    SHFT T,SHFT E] DATA FROM FILE ";N$
    :COLOR 5,2'ERJQ
233 GOSUB 29:IF E=1 THEN 74'EHVF
234 N=N-1:FOR D=C TO N'FHQI
235 CA$(D)=CA$(D+1):SC$(D)=SC$(D+1)
    :SO$(D)=SO$(D+1):DA$(D)=DA$(D+1)
    'IFSV
236 RE$(D)=RE$(D+1):AM$(D)=AM$(D+1)
    :NEXT D'FEEO
237 PRINT TE$"[SHFT R]ECORD [SHFT D,
    SHFT E,SHFT L,SHFT E,SHFT T,
    SHFT E,SHFT D]":SLEEP 2:WF=1
    :GOTO 74'ENYT
238 SCNCLR:GOSUB 11'CDRJ
239 PRINT RT$" [SHFT U,SHFT P,SHFT D,
    SHFT A,SHFT T,SHFT E] DATA IN ";
```

```
    N$'BGQR
240 GOSUB 29:IF E=1 THEN 74'EHVD
241 GZ=1'BDGC
242 WINDOW 0,5,51,21,1:PRINT:PRINT
    :GOSUB 192'ESWI
243 CA$(C)=CA$:SC$(C)=SC$:SO$(C)=SO$
    :DA$(C)=DA$:RE$(C)=RE$
    :AM$(C)=AM$'GJPU
244 PRINT TE$"[SHFT D]ATA [SHFT U]
    PDATED":SLEEP 2:WF=1:GOSUB 11
    :GOTO 74'FQOP
245 SCNCLR:GOSUB 42'CDVH
246 PRINT RT$" [SHFT M]
    ERGE 2 EXISTING FILES "'BDWO
247 PRINT:PRINT"[SHFT N]AME [SHFT M]
    ASTER FILE ":LE=10:GOSUB 278
    :F1$=C$'FQBT
248 PRINT"[SHFT N]AME FILE TO MERGE
    WITH "F1$:GOSUB 278:F2$=C$'DNCT
249 PRINT RT$"[SHFT F]ILE: "F1$'BGCM
250 PRINT"WILL CONTAIN ORIGINAL DATA
    OF BOTH"'BACK
251 PRINT RT$F1$;" AND ";F2$'BLMG
252 PRINT:PRINT RT$" [SHFT I]
    S THIS CORRECT (Y/N/<[SHFT E,
    SHFT S,SHFT C]>)? "'CEPO
253 GET KEY A$'CCEF
254 IF A$=CHR$(27)THEN 260'EJWJ
255 IF A$="N"THEN 245'DFAJ
256 IF A$<>"Y"THEN 253'EFNK
257 PRINT"<MERGING FILES>"'BANM
258 CONCAT (F2$)TO(F1$),D0,U8'CRFN
259 GOSUB 16:PRINT TE$'CGGM
260 GOSUB 13:GOTO 74'CFFE
261 WINDOW 52,3,78,21,1'BNAG
262 PRINT"[CMDR G,SHFT N]O '$' OR
    [SHFT C]OMMAS ALLOWED"'BAYM
263 PRINT RT$"[SPACE27]"'BDTJ
264 PRINT"[CMDR G,SHFT I,SHFT N,
    SHFT C,SHFT O,SHFT M,SHFT E,
    SPACE3]/[SPACE3,SHFT D,SHFT E,
    SHFT D,SHFT U,SHFT C,SHFT T,
    SHFT I,SHFT O,SHFT N]"'BAYU
265 COLOR 5,3:PRINT RT$"[SPACE2,
    SHFT S]UB [SHFT C]ATEGORY
    [SHFT SPACE]1 - [SHFT I,SHFT N,
    SHFT C,SHFT O,SHFT M,SHFT E,
    SPACE2]"'CHNV
266 COLOR 5,2:PRINT"[CMDR G,SHFT W]
    AGES [SHFT F]ARM [SHFT D]IVIDEND
    [SPACE2,SHFT O]THER"'CENT
267 PRINT"[CMDR G] [SHFT I]NTEREST
    [SPACE2,SHFT R]ENTAL [SHFT B]
    USINESS"'BATS
268 COLOR 5,3:PRINT RT$" [SHFT S]UB
    [SHFT C]ATEGORY 2- [SHFT D,SHFT E,
    SHFT D,SHFT U,SHFT C,SHFT T,
    SHFT I,SHFT O,SHFT N] "'CHWA
269 COLOR 5,2:PRINT"[CMDR G,SHFT I]
    NTEREST [SHFT M]EDICAL [SHFT E]
    DUCATION"'CEUW
270 PRINT"[CMDR G,SHFT B]USINESS
    [SHFT T]AX[SPACE2,SHFT C]
    ONTRIBUTION"'BAVN
271 PRINT"[CMDR G,SHFT O]THER[SPACE6,
    SHFT R]ETIREMENT FUND"'BAXM
272 PRINT"[CMDR G]"'BAMG
273 PRINT RT$"[SPACE6,SHFT S,SHFT O,
    SHFT U,SHFT R,SHFT C,SHFT E]
     (4-20 LETTERS)"'BDAQ
274 PRINT RT$"[SPACE3,SHFT N,SHFT O,
    SHFT T,SHFT E]/[SHFT D,SHFT A,
    SHFT T,SHFT E] (1-20
    LETTERS)"'BDHS
275 PRINT RT$" [SHFT R,SHFT E,SHFT C]
    /[SHFT R,SHFT E,SHFT C,SHFT E,
    SHFT I,SHFT P,SHFT T]
     (1-20 LETTERS)"'BDKV
276 PRINT RT$"[SPACE10,SHFT A,SHFT M,
    SHFT O,SHFT U,SHFT N,SHFT T]
     $12345.78 "'BDIS
277 GOSUB 10:RETURN'CDGL
278 TRAP 298'BDVM
279 POKE 208,0'BFPN
280 PRINT TE$"[RVS]["";:FOR X=1 TO LE
    :PRINT" ";:NEXT X:PRINT".]"U$'HQSN
281 X=1:C$="":PRINT TAB(X)U$
    :FOR X=1 TO LE+1'IQEO
282 IF X<1 THEN X=1'EESJ
283 GET KEY Q$'CCPJ
284 IF POS(0)<1 THEN PRINT"[RVS]
    ["TAB(X)'GGWN
285 IF Q$=CHR$(13)THEN FOR Y=0 TO LE-X
    :PRINT RT$CHR$(32);:NEXT Y:X=LE
    :GOTO 294'NFFY
286 IF Q$=CHR$(20)THEN PRINT"[RVS]
     "L$L$"[RVS] "L$;:X=X-1:NI$(X)=""
    :GOTO 282'JDEW
287 IF Q$<CHR$(32)OR Q$>CHR$(218)OR
    Q$=CHR$(34)THEN 283'KWHW
288 IF Q$<CHR$(91)THEN 291'EJTQ
289 IF Q$>CHR$(192)THEN 291'EKRR
290 GOTO 282'BDLG
291 IF X=LE+1 AND Q$<>CHR$(13)THEN
    PRINT TAB(X)U$:X=X-1'MSOS
292 IF Q$>CHR$(20)THEN NI$(X)=Q$'FORN
293 PRINT TAB(X)CHR$(18)Q$"[RVS] "L$;
    :NEXT'EMAN
294 PRINT TE$L$"[RVS]?][RVOFF] "
    :FOR X=0 TO LE:C$=C$+NI$(X)
    :NI$(X)="":NEXT:Q$=""'JHKX
295 PRINT"CORRECT (Y/N)?"
    :GET KEY Q$'DDJQ
296 IF Q$=CHR$(13)THEN 298'EJTP
297 IF Q$<>"Y"THEN PRINT U$"[SPACE14]
    "U$U$:GOTO 278'GMPU
298 IF FL=1 THEN GOSUB 11'EFYQ
299 RETURN'BAQO
300 SCNCLR:PRINT TE$"[SHFT Q,SHFT U,
    SHFT I,SHFT T]?"'CEEC
301 PRINT TE$"[SHFT D]O YOU NEED TO
    [SHFT S,SHFT A,SHFT V,SHFT E]
     CURRENT FILE?"'BDBK
302 PRINT TE$"'Q' TO [SHFT Q]UIT.
    [SHFT A]NY OTHER TO ESCAPE."'BDHJ
303 GET KEY A$:IF A$<>"Q"THEN
    RETURN'HFUG
304 FOR X=0 TO 15:CLOSE X:NEXT
    :END'GIIG
```

END

by Mark Jordan

# The 128 Mode

## *Hugo*

**Explore the Commodore 128 in its powerful native mode. Some of the articles in this column may be technical, some not so technical—but we guarantee that they will spark your creativity.**

Puppets have always interested me. I've done them all, from hand puppets to ventriloquists' dummies to marionettes. I never was very good at any of them, but there was just something about making an inanimate thing come to life that I enjoyed.

The accompanying program, "Hugo," gives me (and you) the opportunity to perform marionettes on the computer monitor. And what makes this program especially fun is that not only do the sprite-puppets come to life, but they can also be forever preserved on videotape. You can do your own sprite videos.

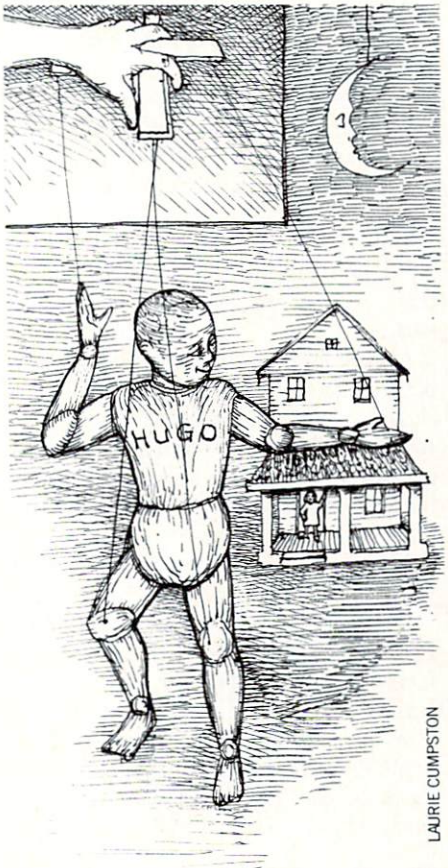
Type in the listing using the Magazine Entry Program at the end of this issue. Save it before running it the first time just in case you crash it (which is a real possibility with this program due to the machine language subroutine).

### The Backdrop

A real marionette operator hides above the scene he has designed, his hands cleverly manipulating strings tied to a crosspiece. With Hugo the backdrop has already been designed for you (though you are cordially invited to re-do it any way you wish): it is an attractive residential scene.

You have two marionettes to control: Hugo and Gloria. You'll discover Hugo immediately upon running the program. He's standing in the lower left quadrant of the screen, hands in pockets, waiting. What's he waiting for? For you to put your skilled right hand on the numeric keypad of your 128 and press some keys. Which keys? Here's a rundown:

1 — Turns Hugo's head
2 — Makes Hugo glance this way/that way
3 — Causes Hugo to wave
4 — Gets Hugo to walk to the left




LAURIE CUMPSTON

5 — Makes Hugo "talk"
6 — Gets Hugo to walk to the right
7 — Causes Hugo's heartthrob, Gloria, to appear in the stairs window
8 — Makes Gloria "talk"
9 — Turns Gloria's head
+ — Moves Gloria from the upstairs window to the front porch door

Gloria, your second puppet, lives in the house, and while she's not as mobile as Hugo (she never leaves the house), she is the perfect foil for Hugo. She's pretty, he's plain. She's vivacious, he's nervous.

A skilled video marionette operator will quickly learn that the best place to place the fingers are over the 4-5-6 keys. This way he can easily reach down to get Hugo to do funny things or up for Gloria's speeches. Once the screen is ready it's up to you to create a patter, a dialog, a script. Something like this will do:

**Hugo:** *(looks side to side before speaking—key 1)* Why did I come here? *(He pauses and glances off—key 2)* Gloria'll never go out with me. I'm just a very ordinary sprite with one very large head, one very small body and very limited mobility. Oh sure, I can walk to the right. *(He walks to the right two steps—key 6)*. And I can walk to the left. *(He walks to the left two steps—key 4)*. But big hairy deal. Even a cursor can do that. *(He pauses again and glances around—key 2)* Well, it's true, I can glance around. And I can wave, too. Let's see a cursor do that. *(He waves—key 3)* But I can't delete characters, I can't go to the home position. Let's face it, I'm about as interesting as text. I'm leaving. I just hope Gloria didn't see me.

*(He turns and begins to exit left—key 4. Then Gloria appears in the upper window—key 7. She speaks—key 8)*

**Gloria:** Hugo! Don't leave.

**Hugo:** *(looks back to the right—key 1. Glances back at you—key 2.)* She speaks. Oh, speak again bright sprite.

**Gloria:** Hugo, that was Shakespeare.

**Hugo:** I knew I heard that somewhere.

**Gloria:** That's very romantic of you. Did you know he once mentioned sprites in one of his plays?

**Hugo:** No. Which one?

**Gloria:** I don't know for sure. What're you doing?

**Hugo:** Oh, I don't know. Just hanging around, I guess.

**Gloria:** Could you hang around a little closer? I can barely hear you. *(Hugo walks several paces to the right—key 6. Gloria turns toward him —key 9)*

**Hugo:** Is this close enough?

**Gloria:** Why don't you just come up on the porch? *(He walks up the steps and onto the porch—key 6. Gloria appears at the door—+ key)*

**Gloria:** Well.

**Hugo:** Uh.

**Gloria:** Yes, Hugo? *(she turns her head—key 9—and whispers)* This is one shy sprite.

**Hugo:** *(he glances toward you—key 3)* What do I do next?

*(A voice—yours, of course—says in a bold, strong way, "Just ask if she'd like to go on a raster-ride with you. Go on.")*

**Hugo:** Well, here goes nothing. *(He looks back at Gloria—key 1)* Gloria, would you like to take a raster-ride with me Friday night?

**Gloria:** I'd love to, Hugo. Maybe we could go off-screen and explore the bottom of the monitor together.

**Hugo:** *(looks at you—key 2)* She said "Yes." *(He looks back at Gloria.)* Great. See you then. *(He turns and begins to walk off screen. When he's almost off-screen he turns to you again and says)* I got a date! Eat that, Cursor.

Now remember what I said, this is just a

suggestion, an idea, to get your creative juices flowing. The real benefit of using a program like Hugo is that you can do some truly creative things. But I do believe if you want to produce a scene that is worth showing to others, you need to write the script down. And practice it. Yes, sad to say, this horrible ingredient is the key to success. Even a computer can't eliminate this step.

Once you're good enough to make sure your characters' mouths match their words, it's time to videotape it.

## How to Hook Up to Your VCR

To record your interactive video, you'll need three items beyond yourself and your computer: a DIN cable to send the composite video signal to the VCR, a microphone with a male RCA jack on the end and a VCR.

The first of these items, the DIN plug, you may already have. If you've been using a composite video monitor (such as the old 1702 or newer 1802) you should have the proper cord already. It's the one with two wires coming from one end. If you lack this, you can purchase such a cable from any video store. Some have four wires coming out of the cable—this will work fine. You should try to get a cable six feet long or longer.

You may be able to get by running the RF wire into your VCR's VHF terminals (via the little switch box that came with your computer), but the video quality will suffer. A composite video feed is much preferred.

As for the microphone, any microphone will do. The trick is to get it to plug into your VCR. If you're lucky, the microphone you have laying in some drawer somewhere just so happens to terminate in an RCA jack. If you're not as lucky, you will need to go the Radio Shack store (or whatever store carries video supplies) and take your mike with you. Then find the adaptor that will allow an RCA jack fitting on the end.

Any VCR will do, because they all have video- and audio-in plugs. Sometimes they're on the front, sometimes on the back.

Now plug the video cable into the back of your 128 video plug. Move your VCR close enough to the computer to plug the composite video plug into the video-in slot on your VCR. Which one is that? You may have to experiment to find out. Leave the other wire(s) dangling.

Next plug the mike into the audio-in of your VCR. You are now ready to do take 1.

Load "Hugo" into your 128 and run it. Place the VCR in RECORD mode, setting it on PAUSE from the start. Sit in your favorite computer chair. Set your script in front of you. Place the mike in your left hand. Place your right hand over the numeric keypad. Take a deep breath. Lean over and release the PAUSE.

## The Three Steps of Sprite Dramas

Begin.
Continue.
Finish.

There—you're finished. Rewind your VCR and watch your show. It wasn't that bad, now was it? It wasn't that good, either. So do it again. And again. And again.

Just in case you haven't done much performing, particularly comedy performing, you will find, after a dozen or so takes, that the jokes seem to have gotten very unfunny. You may decide that your script is terrible.

Don't. At least not yet. Call in husband, wife, mother, father, sister, brother, neighbor, or whoever and let them view it once. Note their response. This does not mean what they say after it's done, because that response is filtered. Note how they watch the scene. If they laugh, that's a good sign. If they begin to look around the room and ask how much longer it will last, that's a bad sign.

Once you've run Hugo I hope your appetite is whetted for some true video puppet shows. Who knows, you may design a video that gets on TV someday.

## An ML Sprite Flipper

Buried within Hugo's code is a handy little machine language subroutine that you may want to incorporate in other programs you are writing. What it does is flip a sprite, instantaneously, from left to right. That is, it will do a mirror-reverse of whatever sprite you choose. And it's very convenient to use.

To begin, you'll need to read the data in lines 485-525 into memory locations 2816-2884. Line 20 of Hugo does the work.

To use this routine all you need to do is include a SYS 2816,,SN,0 whenever you wish to flip a sprite. Of course, the SN is the sprite number (1-8) that you wish to flip.

What could be easier? Try it. You'll find the ability to flip sprites can add a new dimension to your sprites. Now when you want a sprite to go left, flip it into left position. When it's time to go right, do a right flip. Sprite flipping is more fun than watching WWF wrestling. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Hugo

```
10 FAST:COLOR 0,16:COLOR 4,16
   :DIM SP$(16)'ETUE
15 FOR T=0 TO 63:POKE 3584+T,0:NEXT
   :SPRSAV 1,S$'HTKK
20 FOR T=0 TO 68:READ A$
   :POKE T+2816,DEC(A$):NEXT'ITDG
25 FOR K=0 TO 7:READ A,B:A=A+(K*64)
   :B=B+(K*64)'KXRO
30 FOR T=A TO B:READ A$
   :POKE 3584+T,DEC(A$):NEXT'ISEH
35 READ S,P:SPRSAV S,P'CIOH
40 J=K+1:SPRSAV J,SP$(J):SYS 2816,,J,0
   :SPRSAV J,SP$(J+8):SYS 2816,,J,
   0'HTHO
45 NEXT:SPRSAV S$,3'CGPH
50 FOR K=0 TO 3:READ A,B:A=A+(K*64)
   :B=B+(K*64)'KXNM
55 FOR T=A TO B:READ A$
   :POKE 3584+T,DEC(A$):NEXT'ISEO
60 READ S,P:SPRSAV S,P:NEXT'DJVG
65 GRAPHIC 1,1:DIR=9:HD=1'DMZM
70 MOVSPR 1,29,160:MOVSPR 2,23,181
   :MOVSPR 4,207,78:MOVSPR 3,208,
   99'EOCN
75 SPRSAV 1,SP$(15):SPRSAV 2,
   SP$(16)'CVAO
80 FOR T=5 TO 8:READ X,Y,C:SPRSAV 4,T
   :SPRITE T,1,C,0,1,1:MOVSPR T,X,Y
   :NEXT'IKOR
85 SPRSAV SP$(9),1:SPRSAV SP$(12),
   2'CUHO
90 SPRITE 1,1,1,1:SPRITE 2,1,1,1'CRMJ
95 COLOR 1,2:FOR T=0 TO 60 STEP 5
   :BOX 1,160,T,319,T+3,0,1:NEXT'IEUV
100 FOR T=144 TO 320 STEP 56
    :BOX 1,T,88,T+7,136,0,1:NEXT'HDMF
```

```
105 COLOR 1,8:BOX 1,184,16,207,55,0,1
    :BOX 1,272,16,295,55,0,1'DSXK
110 COLOR 0,15:BOX 0,225,88,254,135,,1
    :COLOR 0,16:COLOR 1,2
    :BOX 1,144,120,319,122,0,1'FFRL
115 COLOR 1,8:BOX 1,228,90,252,117,,
    1'CXFH
120 COLOR 1,7:DRAW 1,160,64 TO 120,
    87 TO 320,87:PAINT 1,160,70'FIFH
125 COLOR 1,3:BR=143:FOR I=136 TO 151
    STEP 4:FOR T=BR TO 319 STEP 8'KBJO
130 BOX 1,T,I,T+6,I+2,0,1:NEXT:BR=BR-8
    :NEXT'HXXH
135 COLOR 1,6:FOR T=19 TO 24
    :CHAR 1,0,T,"[SPACE40]",1
    :NEXT'GTBQ
140 SPRSAV 8,A$:FOR T=1 TO 7
    :READ X,Y,C:COLOR 1,C
    :GSHAPE A$,X,Y,2:NEXT'IEDL
145 WIDTH 2:COLOR 0,12:X=5'DKOI
150 FOR HU=0 TO 1'DEMC
155 DRAW 0,70+X,160+X TO 68+X,190+X
    :DRAW 0,100+X,160+X TO 98+X,190+X
    :DRAW 0,69+X,175+X TO 99+X,
    175+X'SHAF
160 DRAW 0,120+X,160+X TO 118+X,
    190+X TO 148+X,190+X TO 150+X,
    160+X'MNYR
165 DRAW 0,200+X,160+X TO 170+X,
    160+X TO 168+X,190+X TO 198+X,
    190+X TO 199+X,175+X TO 189+X,
    175+X'SGYF
170 DRAW 0,220+X,160+X TO 218+X,
    190+X TO 248+X,190+X TO 250+X,
    160+X TO 220+X,160+X'PWCW
175 COLOR 0,7:X=0:NEXT'DHTK
180 SLOW'BBKE
190 DO'BAJE
195 GET KEY A$:IF A$="+"THEN GOSUB 480
    :GOTO 195'HMGQ
200 A=VAL(A$):IF A<1 OR A>10 THEN
    195'HOKD
205 ON A GOSUB 360,380,405,225,280,
    305,430,455,435'CLOJ
210 POKE 208,0'BFPX
215 LOOP'BAKC
225 IF RSPPOS(2,0)<5 THEN RETURN'FHOH
230 IF DIR=9 THEN SPRSAV SP$(1),1:HD=0
    :MOVSPR 1,RSPPOS(2,0)-6,+0'JFUL
235 DIR=1:MOVSPR 1,-4,+1
    :MOVSPR 2,-4,+0'HSUM
240 R=RSPPOS(2,0):IF R=155 OR R=147
    OR R=139 OR R=131 THEN MOVSPR 1,
    +0,+4:MOVSPR 2,+0,+4'RMLT
245 SPRSAV SP$(5),2:SOUND 1,100,1'CREK
250 FOR I=1 TO 75:NEXT'EFUE
255 SPRSAV SP$(4),2'BJOI
260 MOVSPR 1,-4,-1:MOVSPR 2,-4,+0'GNAI
265 FOR I=1 TO 100:NEXT'EGHK
270 RETURN'BAQD
280 SPRSAV SP$(1+DI),1'CLPH
285 IF PEEK(212)<>88 THEN 285'FKBO
290 SPRSAV SP$(0+DI),1'CLOI
295 RETURN'BAQK
305 IF RSPPOS(2,0)>215 THEN
```

```
    RETURN'FJLG
310 IF DIR=1 THEN SPRSAV SP$(9),1:HD=1
    :MOVSPR 1,RSPPOS(2,0)+6,+0'JFUK
315 DIR=9:MOVSPR 1,+4,+1
    :MOVSPR 2,+4,+0'HSBL
320 R=RSPPOS(2,0):IF R=155 OR R=147
    OR R=139 OR R=131 THEN MOVSPR 1,
    +0,-4:MOVSPR 2,+0,-4'RMNS
325 SPRSAV SP$(13),2:SOUND 1,100,
    1'CSBJ
330 FOR I=1 TO 75:NEXT'EFUD
335 SPRSAV SP$(12),2'BKLH
340 MOVSPR 1,+4,-1:MOVSPR 2,+4,+0'GNXH
345 FOR I=1 TO 100:NEXT'EGHJ
350 RETURN'BAQC
360 IF HD=0 THEN SPRSAV SP$(9),1
    :MOVSPR 1,RSPPOS(2,0)+5,+0:HD=1
    :DI=9:RETURN'LJHR
365 SPRSAV SP$(1),1:MOVSPR 1,RSPPOS(2,
    0)-5,+0:HD=0:DI=1'HFMT
370 RETURN'BAQE
380 SPRSAV SP$(2+DI),1'CLQI
385 IF PEEK(212)<>88 THEN 385'FKCP
390 SPRSAV SP$(0+DI),1'CLOJ
395 RETURN'BAQL
405 SPRSAV SP$(5+DI),2'CLUG
410 IF PEEK(212)<>88 THEN 410'FKQE
415 SPRSAV SP$(3+DI),2'CLSH
420 RETURN'BAQA
430 S1=7:GOTO 440'CHYD
435 S1=15'BEFH
440 SPRSAV SP$(S1),4:SPRITE 4,1,1
    :SPRITE 3,1,1'DYEJ
445 RETURN'BAQH
455 SPRSAV SP$(S1+1),4'CLJL
460 IF PEEK(212)<>88 THEN 460'FKVJ
465 SPRSAV SP$(S1),4'BKQM
470 RETURN'BAQF
480 MOVSPR 4,253,140:MOVSPR 3,252,161
    :RETURN'DWDM
485 DATA A9,0E,85,FC,A9,00,85,FB'BXGQ
490 DATA CA,F0,0C,18,69,40,85,FB'BXJM
495 DATA 90,F6,E6,FC,4C,08,0B,20'BXHR
500 DATA 38,0B,8D,FF,0B,C8,20,38'BXKE
505 DATA 0B,91,FB,C8,20,38,0B,88'BXSJ
510 DATA 88,91,FB,C8,C8,AD,FF,0B'BXUF
515 DATA 91,FB,C8,C0,3F,90,E0,60'BXIK
520 DATA A2,08,B1,FB,4A,26,FD,CA'BXTG
525 DATA D0,FA,A5,FD,60'BOWJ
535 DATA 00,63,3D,F0,00,7F,FF,00,7F,
    FE'BEYN
540 DATA C0,3F,F3,F8,10,07,FC,10'BXAI
545 DATA 07,FE,10,03,1E,0E,63,4E'BXHN
550 DATA 05,58,4E,02,20,1C,04,00'BXDI
555 DATA 7C,08,00,38,08,40,18,07'BXAO
560 DATA 00,10,00,80,10,00,71,20'BXCJ
565 DATA 00,42,20,00,44,20,00,38'BXLO
570 DATA 10,00,08,10,00,08,08,0F,1,
    2'BCLL
580 DATA 46,63,78,20,00,30,A0,00,21,
    20,00,22'BKOO
585 DATA 10,00,1C,10,00,08,08,00,1,
    3'BCCR
595 DATA 27,31,01,10,1C,04,00,1,1'BYMS
605 DATA 00,63,07,1F,80,09,BC,60,10,
    E0'BEVL
610 DATA 10,20,80,08,28,01,84,48'BXLF
615 DATA 81,42,48,01,22,48,81,22'BXOK
620 DATA 49,83,44,26,6F,88,2F,F9'BXPH
625 DATA B0,1F,E8,C0,0F,FF,00,1F'BXEM
630 DATA 7E,00,1F,7E,00,3E,FC,00'BXUI
635 DATA 3C,F8,00,3E,F8,00,1F,7C'BXGN
640 DATA 00,17,2E,00,7E,FE,00,00,4,
    5'BCVJ
650 DATA 30,63,1F,F9'BLAH
655 DATA B0,0F,E8,C0,0F,7F,00,0E'BXLP
660 DATA FE,00,0D,FC,00,07,F8,00'BXRL
665 DATA 03,EC,00,01,EC,00,01,F8'BXQQ
670 DATA 00,03,70,00,07,F0,00,00,4,
    6'BCJM
680 DATA 00,37,07,1F,06,09,BC,DB,10,
    E0'BECO
685 DATA 29,20,80,11,28,01,3A,48'BXXR
690 DATA 81,26,48,01,44,48,81,04'BXUN
695 DATA 49,82,88,26,6E,70,2F,FF'BXAT
700 DATA 00,1F,EF,00,0F,FB,4,4'BVWF
710 DATA 00,63,00,EC,00,03,FE,00,07,
    FF'BEVI
715 DATA C0,1F,DF,A0,3F,FF,F0,7F'BXWM
720 DATA FF,FC,DF,FF,FA,DF,FF,FE'BXKJ
725 DATA 76,0F,F6,7F,07,E8,3E,07'BXKN
730 DATA FE,00,03,BE,36,03,FF,10'BXSJ
735 DATA 01,FB,20,01,F5,18,04,F3'BXKO
740 DATA 00,0C,EF,0E,07,BE,00,13'BXJK
745 DATA FE,04,61,FC,03,90,FC,00,7,
    8'BCSQ
755 DATA 45,63,10,04,F3'BOQO
760 DATA 0E,0C,EF,01,07,BE,06,13'BXQM
765 DATA FE,00,61,FC,03,90,FC,00,7,
    7'BCNS
775 DATA 00,63,00,EE,00,03,FF,80,0F,
    FF'BEWT
780 DATA E0,1F,DF,B0,1F,FF,F8,1F'BXAO
785 DATA FF,FC,5F,FF,FC,7F,FF,FC'BXMT
790 DATA 3F,6E,FE,1F,FD,EE,39,F9'BXVP
795 DATA FC,78,01,FC,7B,30,FE,70'BXCU
800 DATA 00,FA,71,00,FC,79,80,FC'BXEH
805 DATA F8,01,EE,F9,E6,D8,7C,07'BXSM
810 DATA FC,3E,1B,F8,19,E0,E0,00,1,
    2'BCYJ
820 DATA 52,61,F6,D8,7C,E7'BRBI
825 DATA FC,3E,0B,F8,19,F0,1,1'BVIN
830 DATA 0,20,03,83,00,0E,85,F0,3E,
    49'BDML
835 DATA FC,7E,33,FE,FF,07,FF,FF'BXIP
840 DATA 8F,FF,FF,FF,FF,1,1'BSEK
850 DATA 00,63,00,DA,30,1E,6F,78,3B,
    7F'BEON
855 DATA F4,5D,B6,F6,FF,FF,CD,7B'BXGR
860 DATA B7,76,7F,FE,FE,1B,BF,EA'BXBN
865 DATA 3E,FB,E9,34,DF,7E,FF,E2'BXOS
870 DATA DB,7D,BF,66,1F,DF,FB,2D'BXUO
875 DATA CC,B6,00,3E,00,00,1E,00'BXJT
880 DATA 00,1E,00,00,1E,00,00,1E'BXXO
885 DATA 00,00,1E,00,00,3F,00,00,3,
    3'BCNU
890 DATA 20,110,6, 50,115,3, 125,80,
    10, 85,98,8'BKES
895 DATA 5,15,6, 30,4,3, 75,10,10,
    110,0,6, 133,20,8, 0,33,9, 40,27,
    6'BEHB
```

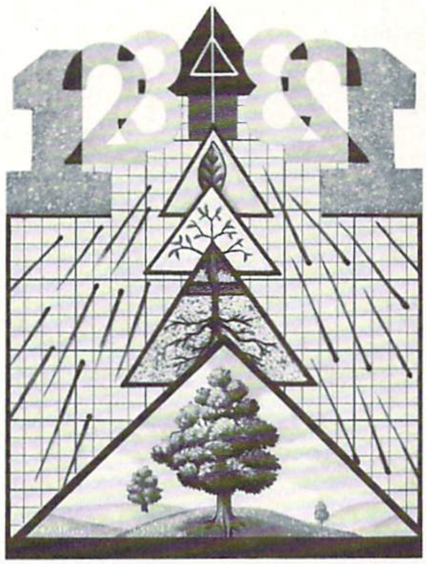
END

by Ian Adam

# Mathematical Art Forms in BASIC 7.0

Have you noticed how the patterns that shape nature pay no respect to size? The humble housefly, when examined under an electron microscope, shows an amazingly complex level of detail. The configuration of our solar system, with smaller bodies orbiting around larger ones, is similar to the way that stars and star clusters orbit the center of the galaxy. And, although we can't be certain, we apply much the same model at the smallest level, to electrons orbiting the nucleus of the atom. For many items in nature, the same patterns recur at many levels—just think of a tree, whose branching structure is repeated from the trunk to the smallest twigs, and even into the roots.

Handling such complexity can be a challenge for computers, which typically represent reality with simplified models, black and white, bits and bytes. Too much detail tends to clutter issues and slow down the processing.



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However, there has been considerable interest in recent years in the mathematical concept of fractals. These are families of mathematical "curves" in which the shape of each element resembles the shape of the whole: when one examines the curve in greater levels of detail, the same patterns repeat. This important property is known as "self-similarity."

The beauty of fractals is that they can be constructed on demand from very simple rules using repetitive procedures to build up their complex shapes. In this respect, fractals are much like the natural processes they seek to represent, which are also generally created by simple relationships. And when it comes to repetitive procedures, computers are ideal! Thus, computers and fractals make an excellent combination—with a computer's attention to detail, a simple rule that is easy to program and requires little memory can be used to simulate many natural phenomena and to build up complex graphic images.

## Fractals on the 128

The accompanying program will allow you to graph a number of different fractal "curves" on the 128. You can plot them at different levels of detail to give a better understanding of the concept "self-similarity." ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Fractals 128

```
100 PRINT"[CLEAR]"'BATV
110 PRINT"[SPACE4]FRACTALS"'BAMY
120 PRINT"[SPACE2]FOR THE C128"'BAAA
130 PRINT'BACX
150 PRINT'BACA
170 GOSUB 700, VARIABLES'BNHF
200 DO:REM ***  MAIN CONTROL LOOP
    ***'CWWD
220 GRAPHIC 0:TRAP 220'CFDA
230 CHAR,0,22'BFDA
240 INPUT"WHICH PATTERN #";A$'BDMF
250 A=INSTR("PQSV",A$)'CGVE
260 IF A THEN ON A GOSUB 2200,1200,
    1600,1700:LOOP'FWUJ
280 CH=VAL(A$):IF CH=0 OR CH>20 THEN
    LOOP'IOCM
290 S=S(CH):K=K(CH):V=V(CH)'DUGM
300 FOR B=1 TO K:P(B)=T(CH,B)
    :NEXT'FQOD
310 COLOR 1,(CH AND 5)+4'DIAB
330 L=INT(LOG(301)/LOG(S))'FLCF
340 PRINT"GENERATION 0 TO"L'BBPF
350 INPUT"WHICH GENERATION (A FOR
    ALL)";A$'BDJK
370 A=VAL(A$):IF A>L THEN LOOP'GIEK
380 B=A:IF A$="A" THEN B=L'FHHK
400 FOR A=A TO B'DDEA
410 D=90:REM START DIRECTION'CSLF
420 L=300:REM LENGTH'CLCE
430 MN=(L+1)/S^A:REM CUTOFF
    LENGTH'FVGK
440 GRAPHIC 1,1:LOCATE 10,V'CIKF
450 GOSUB 500, DRAW'CEAF
460 CHAR,18,0,"FRACTAL: "+N$(CH)'CMIK
470 CHAR,18,1,"GENERATION
    : "+STR$(A)'DJDM
480 NEXT:GET KEY A$:LOOP'EEYJ
490 REM ***  RECURSIVE DRAWING
    ROUTINE  ***'BEQP
500 IF L<MN THEN DRAW TO L;D
    :RETURN'GHGE
520 L=L/S:REM 1 LEVEL DEEPER'DQMH
530 G(L)=1'BFXD
540 D=FN D(D+P(G(L))):GOSUB 500'EQEI
550 G(L)=G(L)+1:IF G(L)<=K THEN
    540'GSML
560 L=L*S'CDWH
570 RETURN'BAQG
680 REM ***  SUBROUTINES  ***'BRMM
700 FAST:L=20:C=360:REM STARTUP'ESDI
710 COLOR 0,1:GRAPHIC 1'CFNE
720 DEF FN D(K)=K+C*(K>C)'GKOJ
730 GOSUB 2000,FOR PRINT ER'DHSH
740 GOSUB 1500,FOR EXTRA RAM'CNYJ
750 DIM A$,CH,V,XI,G(320),P(L),S(L),
    N$(L),T(L,L),K(L),V(L)'BAER
800 GRAPHIC 0:REM EMBER PATTERNS:'CQLH
810 PRINT"PATTERNS AVAILABLE:"
    :PRINT'CBBJ
820 FOR A=1 TO 20'DEUG
830 READ K(A):IF K(A)=0 THEN 950'ENTK
```

```
840 READ S(A),V(A),N$(A)'BPAJ
850 IF A=11 THEN K=19:CHAR,0,8'FLYM
860 PRINT TAB(K)A TAB(K+5)N$(A)'ELJM
880 FOR B=1 TO K(A):READ A$'EJBO
890 T(A,B)=VAL(A$)'CKDO
900 IF A$="R" THEN T(A,B)=90'EKLI
910 IF A$="L" THEN T(A,B)=270'ELCJ
920 NEXT'BAEF
940 NEXT'BAEH
950 REM'BARI
1000 CHAR,0,19'BFJT
1010 PRINT" P[SPACE3]TO PRINT
     IMAGE"'BAWY
1020 PRINT" Q[SPACE3]TO QUIT"'BASX
1030 PRINT CHR$(27)"M":SLOW'DGWY
1040 IF XM=0 THEN RETURN'EDUA
1060 CHAR,20,18," EXPANSION RAM
     : ",1'BJYF
1070 CHAR,20,19," S[SPACE3]STASH #
     [SPACE4,LEFT4]"+STR$(XI),1'DNHK
1080 CHAR,20,20," V[SPACE3]TO VIEW
     [SPACE4]",1'BJXG
1090 RETURN'BAQC
1200 SCNCLR:PRINT CHR$(27)"L"'DFLX
1210 END'BACV
1480 REM EXPANSION RAM ROUTINES'BUGL
1500 X=8192:MN=57088:REM STARTUP'DVIF
1510 FETCH X,X,0,0'BIDB
1520 A=PEEK(MN):B=PEEK(MN)'ELYF
1530 IF A=B THEN XM=0:RETURN'FGGF
1540 XM=128+24*(B AND 16)'EMLH
1550 RETURN'BAQD
1600 GRAPHIC 1:REM STASH'CHPC
1610 STASH X,X,X*(XI AND 7),XI/8'EPDG
1620 XI=XI-(XI<XM/8)'ELFG
1630 GRAPHIC 0'BBOD
1640 CHAR,32,19,STR$(XI),1'CNTH
1650 RETURN'BAQE
1700 GOSUB 1850'BEPB
1710 PRINT"EXPANSION RAM,
      ROOM FOR"XM/8"IMAGES."'CDCL
1720 IF XI*XM=0 THEN INPUT"NO IMAGES
     : PRESS RETURN";A$:GOTO 1850'GNQP
1730 PRINT"YOU HAVE IMAGES 0
     TO"XI-1"IN RAM"'CDKL
1750 GRAPHIC 0:CHAR,0,24'CHWI
1760 GRAPHIC 2,,22'BFDH
1770 INPUT"WHICH IMAGE (-1 TO QUIT)";
     A'BCAO
1780 IF A<0 OR A>=XI THEN 1850'GJZO
1790 FETCH X,X,X*(A AND 7),A/8'ENTO
1800 GRAPHIC 1:SLEEP 1'CEFD
1810 GOTO 1750'BEKD
1850 GRAPHIC 0:CHAR,0,22,
     CHR$(27)+CHR$(64):RETURN'GRFN
1980 REM ***  PRINTER DUMP  ***'BRDO
2000 FOR D=2900 TO 2981'DJKW
2010 READ S:POKE D,S'CFJW
2020 NEXT'BAEV
2030 RETURN'BAQW
2100 DATA 160,32,132,251,160,0,132,
     250,160,25,132,252,160,0,185,157,
     11,32,210'BRPI
2110 DATA 255,200,192,9,208,245,160,
     40,132,253,160,7,177,250,162,7,
     42,118,166'BRKJ
2120 DATA 202,16,250,136,16,243,169,7,
     170,56,101,250,133,250,144,2,230,
     251'BOUJ
2130 DATA 181,166,32,210,255,202,16,
     248,198,253,208,217,198,252,208,
     196,96'BOAK
2140 DATA 27,65,8:REM PRINTER CODE
     FOR LINE SPACING'CIDJ
2150 DATA 13,10:REM LINE FEED'COUE
2160 DATA 27,75,64,1:REM 320 GRAPHICS
     BYTES'CCWI
2200 GRAPHIC 1:TRAP 2260
     : REM SEND TO PRINTER'DUND
2210 OPEN 4,4,5:REM SECONDARY ADDRESS
     FOR GRAPHICS, NO LINE FEED'CTVK
2220 PRINT#4,CHR$(10)CHR$(10)'DKIB
2230 CMD 4:SYS 2900'CGPB
2240 PRINT#4,CHR$(10)'CGMC
2250 PRINT#4'BBDB
2260 CLOSE 4:RETURN'CCFD
2970 REM ***  DATA FOR PATTERNS
     ***'BVCP
2980 REM  (MAXIMUM OF 20
     PATTERNS)'BVBR
3000 DATA 4,2          :REM 4 SEGMENTS,
      SCALE FACTOR OF 2'CDUD
3010 DATA 170,PYRAMID:REM POSITION ON
     SCREEN & NAME'CIMG
3020 DATA 0,L,180,L:  REM THESE AIM
     THE 4 SEGMENTS'CFBF
3040 DATA 5,3,170,SQUARE WAVE'BSLE
3050 DATA 0,L,R,R,L'BJIC
3070 DATA 10,4,170,TREE'BNYF
3080 DATA 0,0,L,330,180,240,180,330,L,
     0:REM 330 MEANS 30 DEGREES
     LEFT'CBNP

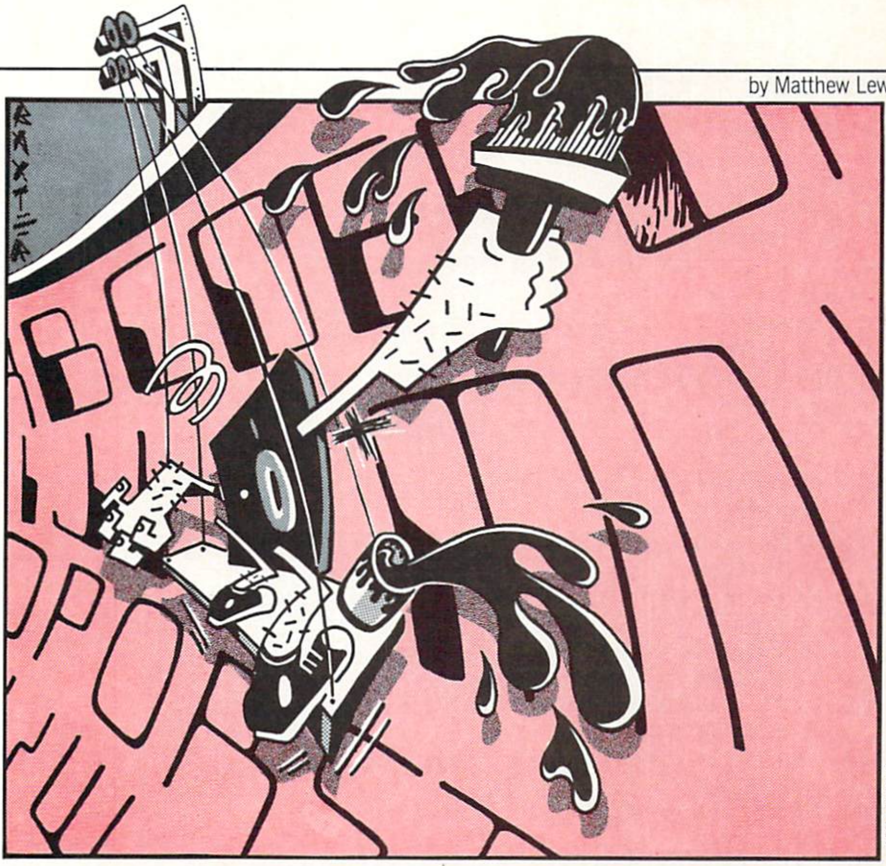
3100 DATA 7,3,100,BRANCH'BOAY
3110 DATA 0,0,330,180,240,180,150'BXWB
3130 DATA 4,3,170,STAR'BMNC
3140 DATA 0,300,120,300'BNOC
3160 DATA 7,3,100,ANGLE'BNEF
3170 DATA 0,225,135,R,315,225,R'BVTH
3190 DATA 6,3,170,M'BJJH
3200 DATA 0,L,150,240,150,L'BRHA
3220 DATA 10,4,184,P'BKLB
3230 DATA 0,L,0,R,R,R,L,L,0,0'BTSE
3250 DATA 6,2,160,V'BJQE
3260 DATA 0,225,180,L,180,225'BTMH
3280 DATA 6,2.5,150,TRIANGLE'BSOJ
3290 DATA 0,225,135,135,225,0'BTJK
3310 DATA 8,4,92,FULL DUPLEX'BRBD
3320 DATA 0,L,R,R,0,L,L,R'BPPD
3340 DATA 5,3,150,SKEW'BMMF
3350 DATA 0,315,45,135,225'BQAG
3370 DATA 7,3,110,DIAMONDS'BQGJ
3380 DATA 0,300,120,60,120,120,0'BWGK
3400 DATA 11,5,150,SURF'S UP'BRVD
3410 DATA 0,315,0,45,0,135,45,315,225,
     0,0'BGVG
3430 DATA 4,2.6,116,WEDGE'BPMF
3440 DATA 0,300,150,L'BLVF
3460 REM ADD PATTERNS HERE'BPLJ
3610 DATA 0:TO SIGNAL END OF
     PATTERNS'DSMI
```

END

by Matthew Lewis

# Tech Letters

## *for the Commodore 64*



ART BAXTER

Have you ever gotten absolutely bored with staring at the same style of alphabet each time you turn on your computer? Well, I certainly have.

Your Commodore 64 comes with a built-in character set. The character set contains the alphanumeric, mathematic and punctuation characters numbered from zero to 255. This set also contains the patterns resulting from hitting SHIFT and a key when in upper case. All these characters can be changed to any design by poking the patterns into memory. This is called redefining characters.

On the Commodore 64 this is done by storing your new characters in memory, usually beginning at 12288 ($3000 in HEX). It is advisable for beginners to use this section of memory to reduce possible complications.

In the program Tech Letters, I have completely redefined the alphanumeric characters of the Commodore 64's character set to produce a Tech type style. The reversed characters have also been redefined.

A unique feature of Tech Letters is the short machine language program which is read into memory prior to running the main program. Most software which redefines the characters in BASIC creates illegible garbage when switching from upper to lower case. This happens when the memory for the lower case characters is cleared improperly. The machine language routine quickly clears the memory to be used, and since the lower case is not being redefined, it also transfers the normal lower case to the new memory location. For those readers who have experimented with, or have programs that redefine characters and have encountered the problem described above, you can join this machine language routine to your program. The data for the routine starts at line 11 and ends at line 18 and should be poked into memory beginning at 832.

To make it easy for those who wish to change the data to design their own characters, I have put all the data in the correct order (starting at line 80 is the data for the numbers 0-9, followed by the data for the 26 letters). You may notice that when RUN/STOP and RESTORE are pressed or when cold starting (SYS 64738), the Tech letters are lost and are replaced by the usual characters. This can be rectified by using POKE 53272,28. The redefined characters will appear once again. Tech Letters is very useful to the many programmers who need a break from the common character set and would like to look at something different while programming or playing a simple BASIC game. ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Tech Letters

```
10 GOTO 1680'BEMX
11 DATA 120,169,51,133,1'BQWB
12 DATA 160,224,162,0,189'BREC
13 DATA 0,208,157,0,48'BODD
14 DATA 232,208,247,238,75'BSKF
15 DATA 3,238,78,3,204'BOIF
16 DATA 75,3,208,236,169'BQQG
17 DATA 55,133,1,88,169'BPQH
18 DATA 28,141,24,208,96'BQLI
80 DATA 063,051,051,063,115,115,115,
   000'BGFK
81 DATA 126,102,102,127,115,115,127,
   000'BGDL
82 DATA 127,099,099,112,112,115,127,
   000'BGAM
83 DATA 127,099,099,115,115,115,127,
   000'BGGN
84 DATA 127,096,096,127,112,112,127,
   000'BGWO
85 DATA 127,096,096,127,112,112,112,
   000'BGQP
86 DATA 127,099,099,112,119,115,127,
   000'BGHQ
87 DATA 099,099,099,127,115,115,115,
   000'BGOR
89 DATA 024,024,024,028,028,028,028,
   000'BGMT
90 DATA 006,006,006,007,103,103,127,
   000'BGWL
91 DATA 102,102,102,127,115,115,115,
   000'BGTM
92 DATA 096,096,096,112,112,112,127,
   000'BGVN
93 DATA 127,073,073,073,105,105,105,
   000'BGMO
94 DATA 127,099,099,115,115,115,115,
```

```
    000'BGDP
95 DATA 127,103,103,099,099,099,127,
    000'BGLQ
96 DATA 127,099,099,127,112,112,112,
    000'BGWR
97 DATA 127,099,099,099,099,127,030,
    000'BGYS
98 DATA 126,102,102,127,115,115,115,
    000'BGAT
99 DATA 127,099,096,127,007,103,127,
    000'BGDU
100 DATA 127,024,024,028,028,028,028,
    000'BGQB
101 DATA 099,099,099,115,115,115,127,
    000'BGOC
102 DATA 115,115,115,115,054,054,062,
    000'BGID
103 DATA 073,073,073,105,105,105,127,
    000'BGME
104 DATA 099,099,099,062,115,115,115,
    000'BGMF
105 DATA 099,099,099,127,028,028,028,
    000'BGXG
106 DATA 127,099,003,127,112,115,127,
    000'BGQH
107 DATA 127,099,099,103,103,103,127,
    000'BGWI
108 DATA 012,012,012,028,028,028,028,
    000'BGDJ
109 DATA 127,099,003,003,127,096,127,
    000'BGXK
110 DATA 126,102,102,031,103,103,127,
    000'BGQC
111 DATA 126,102,102,102,127,014,014,
    000'BGRD
112 DATA 127,096,096,127,007,007,127,
    000'BGDE
113 DATA 127,099,096,127,103,103,127,
    000'BGAF
114 DATA 127,003,003,007,007,007,007,
    000'BGXG
115 DATA 126,102,102,127,103,103,127,
    000'BGWH
116 DATA 127,099,099,127,007,007,007,
    000'BGGI
1680 POKE 56,48:POKE 55,0:CLR'DLHL
1690 FOR J=0 TO 39:READ A:N=N+A'GKYO
1700 POKE 832+J,A:NEXT'DHFD
1710 IF N<>4782 THEN PRINT"DATA ERROR"
     :STOP'GGHI
1720 SYS 832'BDID
1810 REM *** NEW ALPHABET
     CHARACTERS***'BCYJ
1820 REM"[CMDR U29]"'BAGY
1830 FOR J=8 TO 215'DFPG
1840 READ A'BBYF
1850 POKE 12*1024+J,A'DJFJ
1860 NEXT'BAEH
1870 FOR J=384 TO 463'DHRL
1880 READ A'BBYJ
1890 POKE 12*1024+J,A'DJFN
1900 NEXT'BAEC
1910 FOR HK=12*1024+1024 TO
     12*1024+255*8-1:POKE HK,
     255-PEEK(HK-1024):NEXT'OOFU
```

END

## Video Title Shop

*Continued from pg. 28*

while you record. If you want to add sound effects, you'll have to do them directly into the VCR from another source.

*Video Title Shop* suffers from one minor shortcoming—constant borders. There is no option to overscan the screen and eliminate the border frame while you are recording. There is, however, a partial solution to this problem. If you use a border color which matches the major portion of the display, the lack of overscan is minimized. On the other hand, some users may find these borders useful as color frames to emphasize a portion of their presentation.

For those pertrified of cables and the back of TV cases, the program's manual gives clear and extensive instructions on how to connect a VCR, television (or monitor) and computer. But there is no need to connect your recorder while you are creating titles and animations. For that reason, I found it more sensible to create the screens, save them to disk and wait to connect my VCR until after everything is ready. Then just plug in a few cables, insert the video tape and set the unit to Record/Pause while *Video Title Shop* recalls the saved screens. Because each title is timed, adding the correct screen for just the correct time was no problem at all.

*Video Title Shop*'s logical, intuitive command structure will enable most users to have it up and working the same night they peel off the cellophane wrapper. I found it does what it claims and does it well. The program can even give home (not to mention business presentation) videos a professional look which should please you and your audience as well.

I liked the ability to issue all the commands from the keyboard as well as joystick directions. The program does have one curious command. It uses the RUN/STOP key in the way most programs use the RETURN key. For instance, when you cursor through a series of options and highlight the one you want, instead of pressing RETURN to select it (as most programs require), you press the RUN/STOP key. I suspect most users will find this selection scheme takes time to get used to as well. But as far as the other key commands are concerned, they are all intuitively assigned. Most are combination commands using the COMMODORE key and another key. The logic used to assign these keys is welcome. For instance, the command sequence for changing text fonts is COMMODORE/F, color change is COMMODORE/C, save is COMMODORE/S, edit object is COMMODORE/E. That all makes sense to me.

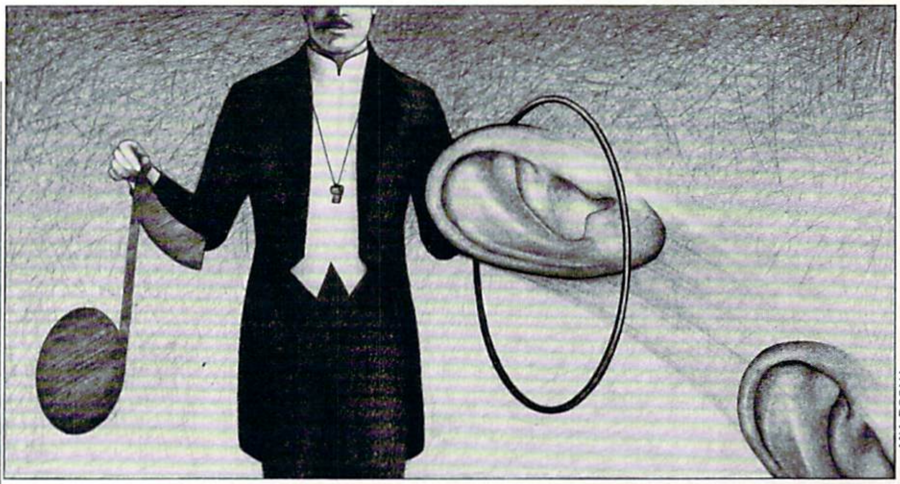
*Video Title Shop* comes with a 48-page manual and a sheet of quick reference commands. While the manual is complete, it is also the program's weakest link. Nearly every page includes a paragraph which ends by telling the user to refer to instructions on another page for clarification. All I can say is, the information you need to master *Video Title Shop* is there, and the professional results are worth the slight irritation and time it takes to read and understand the manual.

*Video Title Shop* could be especially valuable as a tool in a school's audio-visual and art departments. It would be equally useful for businesses that produce in-house teaching or marketing tapes and want to add professional titles or graphics to those presentations. Our church videotapes each Sunday's services for replay later in special teaching clinics and for those who can't attend the service. This program would be ideal for giving those tapes the look of a professional production. The uses in the home, office or school are limited only by the user's ambition.

by Charles W. Kerr

# Ear Trainer

*for the Commodore 128*



MIA BOSNA

You can't satisfy all the people all the time, but you can satisfy many people most of the time. In the case of the Commodore 128, the latter is especially true. It's easily the most versatile home computer ever made, since it's three computers in one: 64, 128 and CP/M. In combination with a 1571 disk drive, it is an agile, capable machine that will fill the needs of most home computerists.

One of the strongest features of the 128 is BASIC 7.0. It has taken most of the drudgery out of programming in BASIC. In particular, the sound and play commands make music programming less arcane and more accessible to the home enthusiast. Ear Trainer is an example of a program that utilizes 7.0 commands in a simple, straightforward manner to accomplish a task: provide practice in recognizing individual tones in the diatonic scale.

Unless you already have perfect pitch, Ear Trainer will help you develop your ear and have some fun doing it. It consists of a series of ten exercises each sounding two tones. To provide a frame of reference, middle C is sounded first, then one of the twelve tones in the diatonic scale. Your task is to name the second tone by typing its name in the appropriate window. Ten points are awarded for a correct answer and five points for an answer within a half-tone. A final score of 70 or higher is rewarded with a well-known musical selection. For those who are not familiar with the scale, the twelve tones are labeled on the keyboard.

Any time you would like to hear the tones repeated, press F3. If you are still not sure of your answer, press F5 to hear and see the diatonic scale. Just follow the bouncing ball!

Don't be discouraged by low scores in the beginning. Discerning the individual tones is difficult, and it may take you a while before you are able to achieve a decent score. As an aid, the notes already sounded are listed on the treble clef. You can then use the process of elimination in determining the possible answers.

Ear Trainer uses the PLAY and TEMPO commands to create music while the WINDOW and SCNCLR (screen clear) commands facilitate screen output. Another useful 7.0 command is KEY which is used to redefine the function keys so that input is easier. If you prefer you may type the letters "P," "R," "S," and "Q" in place of the function keys, however, you are required to press RETURN after each of these keys. FAST, SLEEP and GETKEY are the remaining commands utilized from the 7.0 arsenal.

The Commodore 128 encourages programming with its extensive BASIC 7.0 vocabulary. It's fun, easy to use and produces great results. Give it a try! ■

Before typing this program, read "How to Enter Programs" and "How to Use the Magazine Entry Program." The BASIC programs in this magazine are available on disk from Loadstar, P.O. Box 30008, Shreveport, LA 71130-0007, 1-800-831-2694.

### Ear Trainer

```
10 FAST:SCNCLR:DIM M$(13):DIM A$(13)
   :DIM LI(13):B=Ø:FOR A=Ø TO 8
   :B=B+PEEK(4Ø96+A):NEXT:POKE 41Ø5,1
   :POKE 41Ø6+B,132'RIQU
2Ø KEY 1,CHR$(8Ø):KEY 3,
   CHR$(82)+CHR$(13):KEY 5,
   CHR$(83)+CHR$(13):KEY 7,
   CHR$(81)+CHR$(13):FOR I=2 TO 8
   STEP 2:KEY I,CHR$(I+132):NEXT
   :GOTO 4Ø'XHJB
3Ø PRINT"[SHFT Q]";:SLEEP 1:SCNCLR
   :RETURN'EGEE
4Ø M$(1)="O3W.#C":M$(2)="O3W.D"
   :M$(3)="O3W.#D":M$(4)="O3W.E"
   :M$(5)="O3W.F":M$(6)="O3W.#F"
   :M$(7)="O3W.G":M$(8)="O3W.#G"
   :M$(9)="O3W.A":M$(1Ø)="O3W.#A"'KKRH
5Ø M$(11)="O3W.B":M$(12)="O4W.C"'CNHH
6Ø A$(1)="C#":A$(2)="D":A$(3)="D#"
   :A$(4)="E":A$(5)="F":A$(6)="F#"
   :A$(7)="G":A$(8)="G#":A$(9)="A"
   :A$(1Ø)="A#":A$(11)="B":A$(12)="C"
   :A$(13)="C#"'NGQF
7Ø PRINT CHR$(142):WINDOW Ø,Ø,79,24,1
   :COLOR 5,2:X=Ø:CS$=""
   :FOR CO=1 TO 13:LI(CO)=Ø:NEXT
   :WINDOW Ø,Ø,79,24,1:PO=Ø:HF=Ø
   :POKE 2Ø8,Ø'PVFD
8Ø PRINT TAB(6);"[L. RED,SHFT U,
   SHFT *2,SHFT I]":PRINT"[GRAY3,
   CMDR A,SHFT *5,L. RED,SHFT -,GRAY3,
   SHFT *2,L. RED,SHFT -,GRAY3,
   SHFT *69,CMDR S]"'DEDX
9Ø PRINT"[SHFT -]";TAB(6);"[L. RED,
   SHFT -,SPACE2,SHFT -]";TAB(14);"
   [L. BLUE,SHFT O,CMDR Y2,SPACE3,
   SHFT O,CMDR Y,SHFT P,SPACE3,SHFT O,
   CMDR Y,SHFT P]";TAB(35);"[CMDR Y,
   SHFT P,SHFT O,CMDR Y,SPACE2,SHFT O,
   CMDR Y,SHFT P,SPACE3,SHFT O,CMDR Y,
   SHFT P,SPACE3,SHFT P,SHFT O,SPACE3,
   RVS,CMDR *,RVOFF] [CMDR N,SPACE3,
   SHFT O,CMDR Y2,SPACE3,SHFT O,
   CMDR Y,SHFT P]";TAB(79);"[GRAY3,
   SHFT -]"'FTJS
1ØØ PRINT"[CMDR Q,SHFT *2,L. RED,
    SHFT U,SHFT *2,SHFT +,SHFT *2,
```

```
     SHFT K,GRAY3,SHFT *4,L. BLUE,
     SHFT O,CMDR Y,GRAY3,SHFT *4,
     L. BLUE,SHFT O,CMDR Y,SHFT P,
     GRAY3,SHFT *3,L. BLUE,SHFT O,
     SHFT M,CMDR Y,GRAY3,SHFT *7,
     L. BLUE,CMDR N,CMDR H,GRAY3,
     SHFT *3,L. BLUE,SHFT O,SHFT M,
     CMDR Y,GRAY3,SHFT *3,L. BLUE,
     SHFT O,CMDR Y,SHFT P,GRAY3,
     SHFT *3,L. BLUE,CMDR N,CMDR H,
     GRAY3,SHFT *3,L. BLUE,CMDR H,
     SHFT M,CMDR N,GRAY3,SHFT *3,
     L. BLUE,SHFT O,CMDR Y,GRAY3,
     SHFT *4,L. BLUE,SHFT O,SHFT M,
     CMDR Y,GRAY3,SHFT *6,CMDR W]"'BAOT
110 PRINT"[SHFT -] [L. RED] [SHFT -,
     SPACE2,SHFT -]";TAB(14);"[L. BLUE,
     SHFT L,CMDR P2,SPACE3,CMDR H]
     [CMDR N,SPACE3,CMDR H] [SHFT M]";
     TAB(36);"[CMDR M,CMDR H,SPACE3,
     CMDR H] [SHFT M,SPACE3,CMDR H]
     [CMDR N,SPACE3,SHFT @,SHFT L,
     SPACE3,CMDR H] [CMDR *,SPACE3,
     SHFT L,CMDR P2,SPACE3,CMDR H]
     [SHFT M]";TAB(79);"[GRAY3,SHFT -]
     "'EPNC
120 PRINT"[CMDR Q,SHFT *2,L. RED,
     SHFT -,GRAY3,SHFT *2,L. RED,
     SHFT -,GRAY3,SHFT *72,CMDR W]
     "'BACK
130 PRINT"[SHFT -,SPACE2,L. RED,
     SHFT -,SHFT U,SHFT *,SHFT +,
     SHFT *2,SHFT I,SPACE4,YELLOW]
     SECOND TONE:";TAB(61);"[L. RED]
     TONE NUMBER:";TAB(79);"[GRAY3,
     SHFT -]"'DKXT
140 PRINT"[CMDR Q,SHFT *2,L. RED,
     SHFT -2,GRAY3,SHFT *,L. RED,
     SHFT -,GRAY3,SHFT *2,L. RED,
     SHFT -,GRAY3,SHFT *69,CMDR W]
     "'BALN
150 PRINT"[SHFT -,SPACE2,L. RED,
     SHFT -,SHFT J,SHFT *,SHFT -,
     SHFT K] [SHFT -,SPACE4,L. BLUE]
     TONES SOUNDED:";TAB(66);"[WHITE]
     POINTS:";TAB(79);"[GRAY3,SHFT -]
     "'DKVT
160 PRINT"[CMDR Z,SHFT *2,L. RED,
     SHFT J,SHFT *2,SHFT -,SHFT *2,
     SHFT K,GRAY3,SHFT *69,CMDR X]
     "'BAFN
170 PRINT TAB(4);"[L. RED,SHFT J,
     SHFT *,SHFT K]":PRINT TAB(16);"
     [L. BLUE,CMDR @48]"'EIRP
180 PRINT TAB(16);"[CMDR G,SPACE2,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,L. BLUE,
     CMDR M,SPACE3,RVS,GRAY3,SPACE2,
     RVOFF,SPACE2,RVS,SPACE2,RVOFF,
     SPACE2,L. BLUE,CMDR M,SPACE3,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,RVS,
     SPACE2,RVOFF,SPACE2,RVS,SPACE2,
     RVOFF,SPACE2,L. BLUE,CMDR M,
     SPACE3,RVS,GRAY3,SPACE2,RVOFF,
     SPACE2,RVS,SPACE2,RVOFF,SPACE2,
     L. BLUE,CMDR M]"'CEBX
190 PRINT TAB(16);"[CMDR G,SPACE2,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,L. BLUE,
     CMDR M,SPACE3,RVS,GRAY3,SPACE2,
     RVOFF,SPACE2,RVS,SPACE2,RVOFF,
     SPACE2,L. BLUE,CMDR M,SPACE3,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,RVS,
     SPACE2,RVOFF,SPACE2,RVS,SPACE2,
     RVOFF,SPACE2,L. BLUE,CMDR M,
     SPACE3,RVS,GRAY3,SPACE2,RVOFF,
     SPACE2,RVS,SPACE2,RVOFF,SPACE2,
     L. BLUE,CMDR M]"'CEBY
200 PRINT TAB(16);"[L. BLUE,CMDR G,
     SPACE2,RVS,GRAY3,SPACE2,RVOFF,
     SPACE2,L. BLUE,CMDR M,SPACE3,RVS,
     GRAY3]C#[RVOFF,SPACE2,RVS]D#
     [RVOFF,SPACE2,L. BLUE,CMDR M,
     SPACE3,RVS,GRAY3]F#[RVOFF,SPACE2,
     RVS]G#[RVOFF,SPACE2,RVS]A#[RVOFF,
     SPACE2,L. BLUE,CMDR M,SPACE3,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,RVS,
     SPACE2,RVOFF,SPACE2,L. BLUE,
     CMDR M]"'CEAS
210 PRINT TAB(16);"[L. BLUE,CMDR G,
     SPACE2,RVS,GRAY3,SPACE2,RVOFF,
     SPACE2,L. BLUE,CMDR M,SPACE3,RVS,
     GRAY3,SPACE2,RVOFF,SPACE2,RVS,
     SPACE2,RVOFF,SPACE2,L. BLUE,
     CMDR M,SPACE3,RVS,GRAY3,SPACE2,
     RVOFF,SPACE2,RVS,SPACE2,RVOFF,
     SPACE2,RVS,SPACE2,RVOFF,SPACE2,
     L. BLUE,CMDR M,SPACE3,RVS,GRAY3,
     SPACE2,RVOFF,SPACE2,RVS,SPACE2,
     RVOFF,SPACE2,L. BLUE,CMDR M]"'CEAS
220 PRINT TAB(16);"[L. BLUE,CMDR G,
     SPACE2,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M]"
     :PRINT TAB(16);"[L. BLUE,CMDR G,
     SPACE2,CMDR M,SPACE3,CMDR M,
     SPACE2,L. RED]C[L. BLUE,CMDR M,
     SPACE2,WHITE]D[L. BLUE,CMDR M,
     SPACE2,WHITE]E[L. BLUE,CMDR M,
     SPACE2,WHITE]F[L. BLUE,CMDR M,
     SPACE2,WHITE]G[L. BLUE,CMDR M,
     SPACE2,WHITE]A[L. BLUE,CMDR M,
     SPACE2,WHITE]B[L. BLUE,CMDR M,
     SPACE2,WHITE]C[L. BLUE,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M]"'EJDL
230 PRINT TAB(16);"[L. BLUE,CMDR G,
     SPACE2,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M,
     SPACE3,CMDR M,SPACE3,CMDR M]"
     :PRINT TAB(16);"[L. BLUE,CMDR T48]
     "'EJKX
240 PRINT TAB(16);"[GRAY3]1ST TONE
     [L. RED,UP ARROW]":PRINT
     :PRINT TAB(6);"[RED]F1 TO START
     : TYPE NAME OF 2ND TONE (SHIFT 3
     FOR #) THEN PRESS RETURN"'FJBB
250 PRINT"[L. RED,SHFT *80]"'BACM
260 PRINT" [L. BLUE]F1[SPACE2,GRAY3]
```

```
     PLAY TONE[SPACE7,YELLOW]F3[SPACE2,
     GRAY3]REPEAT TONE[SPACE8,L. RED]
     F5[SPACE2,GRAY3]CHROMATIC SCALE
     [SPACE8,WHITE]F7[SPACE2,GRAY3]
     QUIT";'BBDY
27Ø TEMPO 2Ø:PLAY"V3O3T8ICI#CIDI#DIEI
     FI#FIGI#GIAI#AIBO4IC"
     :TEMPO 15'DJRR
28Ø GET KEY S$:IF S$=CHR$(8Ø)THEN
     WINDOW 6,22,78,22,1:POKE 2Ø8,Ø
     :SCNCLR:GOTO 29Ø:ELSE 28Ø'LMXT
29Ø FOR X=1 TO 1Ø:WINDOW 73,6,78,6,1
     :PRINT"[RVOFF,WHITE]";X;'FVNN
3ØØ NU=INT(RND(Ø)*12)+1:NM=NU-1
     :NP=NU+1'JWRI
31Ø IF LI(NU)=1 THEN 3ØØ'DKXC
32Ø PLAY"V1O3T7W.C":SLEEP 1'CESD
33Ø LI(NU)=1'BHHC
34Ø PLAY M$(NU):SLEEP 1'CKSE
35Ø WINDOW 27,6,57,6,1:POKE 2Ø8,Ø
     :GOTO 4ØØ'DWMI
36Ø TEMPO 5:PLAY"V3O3T7QC"
     :WINDOW 26,2Ø,29,2Ø,1:GOSUB 3Ø
     :PLAY"Q#C":WINDOW 28,1Ø,31,1Ø,1
     :GOSUB 3Ø:PLAY"QD":WINDOW 3Ø,2Ø,
     33,2Ø,1:GOSUB 3Ø'KMHB
37Ø PLAY"Q#D":WINDOW 32,1Ø,35,1Ø,1
     :GOSUB 3Ø:PLAY"QE":WINDOW 34,2Ø,
     37,2Ø,1:GOSUB 3Ø:PLAY"QF"
     :WINDOW 38,2Ø,41,2Ø,1
     :GOSUB 3Ø'JJCY
375 PLAY"Q#F":WINDOW 4Ø,1Ø,43,1Ø,1
     :GOSUB 3Ø'DTSP
38Ø PLAY"QG":WINDOW 42,2Ø,45,2Ø,1
     :GOSUB 3Ø:PLAY"Q#G"
     :WINDOW 44,1Ø,47,1Ø,1:GOSUB 3Ø
     :PLAY"QA":WINDOW 46,2Ø,49,2Ø,1
     :GOSUB 3Ø:PLAY"Q#A"'KLBC
385 WINDOW 48,1Ø,51,1Ø,1:GOSUB 3Ø'CRHO
39Ø PLAY"QB":WINDOW 5Ø,2Ø,53,2Ø,1
     :GOSUB 3Ø:PLAY"O4QC"
     :WINDOW 54,2Ø,57,2Ø,1:GOSUB 3Ø
     :WINDOW 27,6,57,6,1:TEMPO 15
     :POKE 2Ø8,Ø'JMAB
4ØØ INPUT I$:IF I$=""OR I$<CHR$(65)OR
     I$>CHR$(72)AND I$<CHR$(8Ø)OR
     I$=CHR$(72)OR I$>CHR$(83)THEN
     4ØØ'TNMS
41Ø IF I$=CHR$(82)THEN 32Ø'EJDD
42Ø IF I$=CHR$(83)THEN 36Ø'EJIE
43Ø IF I$=CHR$(81)THEN 57Ø'EJJF
44Ø IF I$=A$(NU)THEN PRINT"CORRECT!";
     :PRINT CHR$(7);:VOL 15:SLEEP 1
     :SCNCLR:SC=SC+1Ø:GOTO 47Ø'MHQT
45Ø IF NP=14 THEN 47Ø'DHEG
46Ø IF I$=A$(NP)OR I$=A$(NM)THEN
     PRINT"[WHITE]CLOSE
     : THE NOTE WAS ";A$(NU);:SLEEP 2
     :SCNCLR:SC=SC+5:ELSE PRINT"[WHITE]
     INCORRECT : THE NOTE WAS ";A$(NU);
     'MSEJ
465 SLEEP 2:SCNCLR'CDRL
47Ø PO=PO+SC:SC=Ø:WINDOW 73,8,78,8,1
     :PRINT"[L. RED]";PO;
     :POKE 2Ø8,Ø'GJNR
48Ø CO$=A$(NU):CS$=CS$+CHR$(32)+CHR$
     (32)+CO$:CO$="":WINDOW 28,8,64,8,1
     :PRINT"[YELLOW]";CS$;'KAMY
49Ø IF X=1Ø AND PO>69 THEN GOSUB
     58Ø'GKCN
5ØØ IF X=1Ø THEN 53Ø'DGCC
51Ø GET KEY P$:IF P$=CHR$(8Ø)THEN
     53Ø'GMIG
52Ø IF N$=CHR$(69)THEN 57Ø
     :ELSE 51Ø'FNEH
53Ø POKE 2Ø8,Ø:NEXT'CGWE
54Ø WINDOW Ø,22,79,24,1
     :PRINT TAB(26);"[L. RED,DOWN2]
     N - NEW GAME";TAB(48);"E - END";
     'EYNP
55Ø GET KEY E$:IF E$=CHR$(78)THEN
     7Ø'GLTK
56Ø IF E$=CHR$(69)THEN 57Ø
     :ELSE 55Ø'FNZL
57Ø WINDOW Ø,Ø,79,24,1:COLOR 5,4
     :BANK 15:SYS 49425:PRINT
     CHR$(27)CHR$(88):END'ILAS
58Ø TEMPO 2Ø:WINDOW 21,1Ø,61,1Ø,1
     :PRINT"[WHITE]JESU,
      JOY OF MAN'S DESIRING - J.S.
     BACH";'DUAX
59Ø PLAY"T6O4QGQAQBO5QDQCQCQEQDQDQGQ#
     FQGQDO4QBQGQAQBO5QCQDQEQDQCO4QBQA
     QBQGQ#FQGQAQDQ#FQAO5QCO4QBQAQBQGQ
     AQBO5QD"'BBBM
6ØØ PLAY"QCQCQEQDQDQGQ#FQGQDO4QBQGQAQ
     BQEO5QDQCO4QBQAQGQDQGQ#FQGQBO5QDQ
     GQDO4QBQGQBQDHG":SCNCLR
     :RETURN'DDCY
```

END

by Graham Kinsey

# Amiga Public Domain Update




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This month I have reviewed programs from Fish Disks 103 through 110 as well as the long-awaited AMICUS Disks 21 and 22. Although very few AMICUS disks have been issued in the past few months, John Foust (the creator of the AMICUS disk series) assures me that the series is not dead. John expects releases to increase quickly in the months to come.

On the modem side of the Amiga public domain world, one of the big happenings is that the results of the recent BADGE Killer Demo contest held in California are now in, and all the winning demos are being released to the eagerly waiting Amiga users. I will review the bulk of the BADGE winners in next month's column, but I do mention a few this month, including the grand prize winner, RGB.

For each program, the author is given, and if that PD program is available on the Fish series or the AMICUS series of public domain disks, the number of each series is given before the description. I do not keep track of which programs are available on PeopleLink here since virtually all of the programs mentioned in this column are available for downloading in the libraries in the Amiga Zone on PeopleLink. When a public domain program has been classified as shareware, this is also mentioned with the suggested amount.

**Calc:** by Bob Brooks (Fish 103)

This a command-line, input-style, programmable calculator. In addition to the usual mathematic functions, Calc also allows you to perform angle conversions and time conversions. Calc simulates a computer by putting all answers into one of four built-in memory registers, plus you can manipulate the registers by exchanging register values and also simulate a FIFO stack with the registers. Calc also allows you to store answers into any one of 100 different storage registers.

**DosKwik:** by Gary Kemper
(Fish 103; Shareware: $10)

If AmigaDOS has been giving you fits, here's another way to bypass it. DosKwik allows you to read and write disk files that do not use the AmigaDOS file format. This is useful for several reasons: First of all files can be read and/or written two to three times as fast. Also, more data can be stored on a disk using DosKwik than using AmigaDOS. Finally, it is now possible via DosKwik to create a file that actually spans more than one disk. This last feature makes it possible for *every* Amiga owner to load single files that are over a megabyte in size!

**IntuiDOS:** by Lennart Sandin (Fish 103)

Yet another CLI replacement program. IntuiDOS uses menus rather than gadgets to display commands. This program has only one display window for disk directory displays, but uses a grid system to allow you to efficiently scroll through the display window. What is really unique concerning this grid system is that IntuiDOS will store directory information of many different disks at one time (even after the disk has been ejected from one of the drives), and this grid system also allows you to quickly flip through the different disks. IntuiDOS doesn't have hardwired commands, but rather allows you to choose from up to 50 different commands. Once you set up IntuiDOS, all the chosen commands will appear as part of the IntuiDOS menu system. IntuiDOS supports command histories for those who hate repetitive typing.

**MFF-Update:** by Software Visions
(Fish 103)

For those of you who own the database program *MicroFiche Filer*, here is an update of some public domain databases. Also contained in this PD version of the MFF update is a text importing program that allows you to import ASCII text into any *MicroFiche Filer* database.

**Pack-it:** by Gary Kemper
(Fish 103; Shareware: $10)

Here is a new twist on file archiving programs. Pack-it reads in a bunch of directories and/or files and combines the whole mess into one file. The resulting file is not compressed, but the single output file can then be easily compressed via the program Arc.

**AnalytiCalc:** by Glenn Everhart
(Fish 104; Shareware: $10)

Another powerful public domain business program has been released for the Amiga. AnalytiCalc is a complex spreadsheet program. The maximum dimension of an AnalytiCalc spreadsheet is 18,000 rows by 18,000 columns. Some of the major features of AnalytiCalc include 16-digit precision, a built-in on-line calculator and over 70 different functions. If the supplied functions aren't enough for you, then you can write your own functions for AnalytiCalc. AnalytiCalc does not have any menus, but the function keys are sometimes utilized to enter commands. Since the program takes up a minimum of 600K, You must have one megabyte of memory in order to use AnalytiCalc. This program is written in Fortran, and the source code (for version 2.3 of Absoft Fortran) is provided.

**AsmProgs:** by Glen McDairmid and Kirk Davies (Fish 105)

Here are a few simple programs written in assembly language. AddKickMem is useful for those people who have Amiga 1000s with Kickstart installed in ROM. AddKickMem will automatically install the WCS memory that used to be occupied by Kickstart, while it's smaller and faster than Addmem, which also does this. L and Stack are tiny replacements for the AmigaDOS BCPL List and Stack commands. Also in this collection of assembly programs is SharpFont, a nice replacement for the topaz 8-point font.

**FlamKey:** by Alex Livshits
(Fish 105; Shareware: $10)

Here is another program that allows you to freeze all mouse and keyboard input so that children and/or pets can't fool around with your Amiga. FlamKey is different from other such program in that it sports a window filled with gadgets, and when FlamKey is first run, a small key appears on your screen that must be clicked on in order to activate the program (or to deactivate the program with the user-defined password).

**Programmer's Suite:** by R.J. Mical (Fish 107)

After R.J. Mical, the father of Intuition (the Amiga's user interface), finished Intuition he proceeded to work on many different projects. One of these projects was a set of routines to help programmers with the task of programming on the Amiga. After months of delay, Book One of the result, Programmer's Suite, has been released into the public domain! Book One of Programmer's Suite includes a file requester preset that allows programmers to include a colorful, gadget-filled file requester without toiling for weeks over its creation. A color requester shows how to allow the end user of a program to easily choose the colors he/she wants to use. Xtext() is a handy routine that displays text at an extremely fast rate. DoRequest() basically allows you to create a standard requester without having to watch and maintain it. DoRequest will create a standard boolean Intuition requester, (of the Retry/Cancel type) then monitor it, kill the requester when the user answers, and even tell your program what decision the user made. Not only is extensive documentation supplied for each routine, but the complete source code is also available, along with Make files for both Lattice C and Aztec C. Programming on the Amiga is not easy, and projects like this can do a world of good for programmers.

**SVTools:** by Stephen Vermeulen (Fish 107)

Yet another set of small utility tools. The gems in this package are three tools that allow you to access the Workbench "Info" option from CLI. Setstack allows you to set the stack option of an icon; Sit defines the icon tool type, and Retool will let you edit the default tool string of an icon. Also included in the SVTools set are programs for monitoring memory lists and one for showing off a bug which can occur when you try to drag a window off the current screen.

**MonIDCMP:** by David Cervone (Fish 108)

MonIDCMP monitors the IDCMP port of a selected window and will report on all messages that are received by the program via Intuition. MonIDCMP will report on such things as gadget selection, menu use, mouse button clicking, any key press (including any key qualifiers, like ALT, CTRL and SHIFT), plus incoming messages from other programs. MonIDCMP will let you redirect the information output to any device, including output to a disk file or to a printer.

**Machine:** by Allan Hastings (Fish 109)

This is a complex *VideoScape 3-D* animation. This animation has many different moving parts. You need one megabyte in order to run it.

**SimCPM:** by Charlie Gibbs (Fish 109)

Since Emulation of other systems seems to be becoming more and more popular, this program may be important to some people. SimCPM emulates a CP/M operating system environment running on an 8080 (not a Z80), including BIOS and BDOS calls. Also included in the emulation package is basic H19 terminal emulation support and an easy way to load in Microsoft BASIC-80 for running CP/M BASIC programs. SimCPM only works via CLI.

**UUpc:** by Jeff Lydiatt (Fish 109)

If you have heard about the famous computer information network Usenet and would like to access it but don't work for an electronics company or an educational institution, UUpc gives you the capability to turn your Amiga into a separate Usenet node. Of course, you will still have to find an organization that has access to Usenet that will permit you to hook up through them to Usenet.

**EHB:** by Leo Schwab (AMICUS 21)

This is a demo of Extra Half-Bright Mode, a special graphics mode on the Amiga that allows you to display 64 colors on the screen simultaneously using six bitplanes (Note: this is *not* the same as Hold and Modify!). The unique thing about this Half-Bright demo is that it is very easy to tell whether you do indeed have Half-Bright mode. The demo in fact tells you, by either plainly displaying some text confirming that your Denise chip does support Half-Bright mode, or the lack of text showing that your Amiga does not have Half-Bright mode. All Amiga 500s and 2000s do have Half-Bright mode supported in the Denise chip (only *some* 1000s lack Half-Bright mode).

**Marketroid:** by Leo Schwab

Leo has been known for adding a sense of humor to his graphic demos and graphic display hacks, but he really outdid himself with Marketroid! This demo is of a non-existent game called "Marketroid" which is styled after the arcade game *Robotron 2084*, but that's where the similarity ends. The basic premise of Marketroid is that you are transformed into a computer nerd with supercomputing power, and it is your job to save the last real hackers (the original design team of Amiga, Inc.) from the competition's "Marketroids."

The only thing I will say about this demo is if this game actually came into being (which is very doubtful, since I doubt that any company would have the guts to market such a controversial product), it might very well sell over 50,000 copies in the first month. If you are one of the original Amiga 1000 purchasers, I think you will understand this statement.

**VCheck:** by Bill Koester
**VirusTest:** by Craig Bowen

A few months ago in Europe some prankster created an Amiga program that would replace the boot block of any disk with a virus program. The virus program wasn't intended to do anything except display an annoying message after you booted that disk a certain number of times, and of course pass the virus program onto other disks. What was even worse is that once the virus program was resident in memory, it would make sure that a warm boot would not harm it!

As for the intended harmlessness of this virus program, if it should happen to overwrite the boot block on any Amiga disk that has a custom format (i.e., something besides the standard AmigaDOS file format), that particular disk will be trashed *permanently*. Some commercial games and other programs use custom file formats. Needless to say, the Amiga disk virus can be deadly.

These are two programs that can warn you if the virus is present. VCheck checks to see if a particular disk is infected with the virus, while VirusTest checks to see if the virus program is resident in memory. What can you do if the virus program is present? Well, if it is in memory, just shut off the computer! *Do not perform a* CTRL/AMIGA/AMIGA; you must turn the power off. As far as an infected disk goes, all you have to do is to use the AmigaDOS INSTALL command on that disk. If it is a standard AmigaDOS disk, this will free that disk of the virus.

**RGB:** by Joel Hagen

Here is the second demo created with the commercial slideshow/animation program *The Director* (the first was the Probe demo, reviewed in the December 1987 installment of this column). Although this demo is much shorter in length than the Probe demo, RGB is very nice and very

*Continued on page 104*

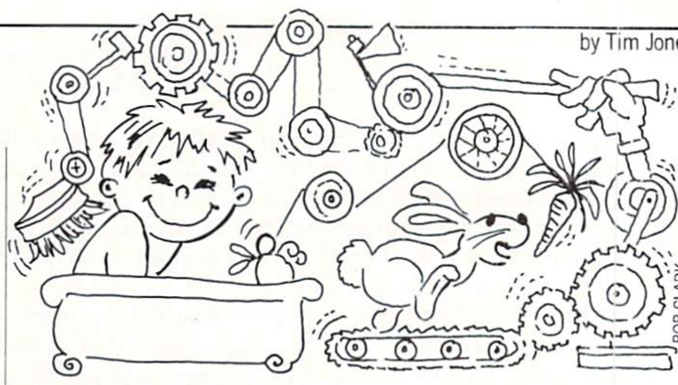
AMIGA UPDATE

by Tim Jones

# AmigaBASIC Tutorial

## *Working with Gadgets*

**A short program demonstrates difficult areas of AmigaBASIC, offering both tips on confusing areas and tricks to make your life easier. Rather than an article followed by a program, we have combined them for the sake of clarity.**




```
' Back in November of '87, we took a look at how to use the
' built-in Intuition system library to create actual system
' Requesters.  This time out, let's examine the structure of
' system Gadgets and create them from within an AmigaBASIC
' program.

' To start things off, we'll set up the variable types, DIM
' the necessary arrays and then open the appropriate
' libraries.  In this instance, as with requesters, we will
' need both, the intuition library and the exec library.
' Intuition will supply us with the necessary functions to
' create and manipulate the gadgets, while exec supplies us
' with the functions to allocate memory and then release it
' when we finish.  We will use graphics.library simply to
' allow finer control over our display.

WINDOW CLOSE 1
DEFINT a-Z

TRUE = -1 : FALSE = 0
Okay = FALSE

LIBRARY "exec.library"
LIBRARY "intuition.library"
LIBRARY "graphics.library"

DECLARE FUNCTION AllocMem& LIBRARY

GadCnt = 10 ' We will create 10 Gadgets
MemType& = 65539&

DIM Rp&(1),Wp&(1)

' The following arrays will hold the data pointers for our
' calls to the various intuition functions involved with
' creating and manipulating gadget data.

' Gad&()       is the address of each gadget structure
' StrBuf& is a pointer to the buffer for the String gadgets
' SpecInfo&() is a pointer to the Special Info structure for
'             the String gadgets.

DIM Gad&(GadCnt),StrBuf&(GadCnt),SpecInfo&(GadCnt)

' Now, let's create our display by opening a window,
' create the Window and Rastport pointers and then use
' standard AmigaBASIC graphics statements to create our gadget
' buttons and data entry areas.

Display

' Now that the screen looks the way we like, let's use a call
' to our gadget creation SUB PROGRAM to create each of the
' gadgets that we will use.  The parameters are passed as
' follows:

' MakeGad NUMBER,LEFT EDGE,TOP EDGE,LENGTH,HEIGHT,TYPE,
'         NUMBER OF CHARACTERS,NUMBER SHOWN,NEXT GADGET

' Some of these items are self explanatory, but others should
' be given a bit of comment.  The values passed as TYPE,
' NUMBER OF CHARACTERS and NUMBER SHOWN aren't easy to follow
' from their names.

' TYPE refers to what kind of GADGET it is.  The CHOICES are
'       BOOLEAN - 0, PROPORTIONAL - 3 or STRING - 4
'       BOOLEAN is of the YES/NO variety, PROPORTIONAL
'       gadgets are the sliders in Preferences and STRING is
'       just what the name implies.

' NUMBER OF CHARACTERS is the MAXIMUM number of characters
'                      the user may enter into the gadget.
'                      This number doesn't have to be the
'                      same size as the NUMBER SHOWN.

' NUMBER SHOWN is the number of characters in the StrBuf&()
'              memory that are actually displayed.  This
'              number can be smaller than the maximum number
'              of characters allowed.  The String gadget will
'              scroll characters as necessary left OR right.

GadData:

' String Gadgets

  MakeGad 1,8,8,304,8,4,37,41,2
  MakeGad 2,8,24,304,8,4,37,41,3
  MakeGad 3,8,40,304,8,4,37,41,4
  MakeGad 4,8,56,304,8,4,37,41,5
  MakeGad 5,8,72,304,8,4,37,41,6
  MakeGad 6,8,88,192,8,4,24,41,7
  MakeGad 7,216,88,20,8,4,3,3,8
  MakeGad 8,252,88,52,8,4,6,11,9

' Boolean Gadgets

  MakeGad 9,500,25,65,14,1,0,0,10
  MakeGad 10,500,50,65,14,1,0,0,0

' Now, let's watch for one of the two Boolean gadgets to be
' hit.  To do this, we monitor the 12th and 13th bytes of our
' gadget structures (Gad&(9) and Gad&(10)) to see if bit 8 of
' the pair (16 bits total - numbered 0 to 15) is set.  The
' String Gadgets are self controlled, and don't have to be
' watched.  The program will suspend itself until you either
' hit return or cause another event to occur (i.e. another
' gadget hit or menu operation).

' If you've entered anything in the string gadgets, the
' FixData routine will build a string that BASIC can
' manipulate.  This is done whenever you select the "Enter"
' gadget.

' If you select the "Bye!" gadget, the program will shut down
' the window and screen, free up the allocated memory and then
' shut itself down.

Main:

  WHILE -1

' PEEKW looks at two consecutive bytes
' We examine the Activation bytes for activity

    G1 = PEEKW(Gad&(9)+12)
    G2 = PEEKW(Gad&(10)+12)

' If selected, bit 8 is set (2^8 or 128)

    IF G1 AND 128 THEN
      GOSUB FixData
    ELSEIF G2 AND 128 THEN
      CleanUp
    END IF
  WEND

FixData:

  LOCATE 14,1 : COLOR 11 : PRINT "Hang on..."
  FOR cnt = 1 TO 8
    Dat$(cnt) = ""
    Char = 0
    WHILE PEEK(StrBuf&(cnt)+Char) <> 0
      Dat$(cnt) = Dat$(cnt) + CHR$(PEEK(StrBuf&(cnt)+Char))
      Char = Char + 1
    WEND
  NEXT cnt
  LOCATE 15,1 : COLOR 14
  FOR cnt = 1 TO 8
    PRINT SPACE$(60)
  NEXT cnt
  LOCATE 15,1
  FOR cnt = 1 TO 8
    PRINT Dat$(cnt)
  NEXT cnt
  RETURN

SUB Display STATIC
SHARED Rp&(),Wp&()

  SCREEN 1,640,200,4,2
  WINDOW 1,"Intuition Gadgets",(0,0)-(631,186),0,1
  Rp&(1) = WINDOW(8) : Wp&(1) = WINDOW(7)

  PALETTE 0,0,0,0
  PALETTE 1,3/16,7/16,13/16
  PALETTE 2,0,5/16,13/16
  PALETTE 3,9/16,11/16,0

  SetDrMd& Rp&(1),0

' The following set of LINE statements are what would be
' considered our border structure.  In C or Assembler, we
' would have had to create the data structure.  In AmigaBASIC,
' we take advantage of the built in graphics functions.
```

```
' First String Gadget
  LINE(3,5)-(306,18),4,bf
  LINE(5,6)-(304,17),0,b
  LINE(7,8)-(302,15),0,bf

' Second String Gadget
  LINE(3,21)-(306,34),9,bf
  LINE(5,22)-(304,33),0,b
  LINE(7,24)-(302,31),0,bf

' etc.
  LINE(3,37)-(306,50),9,bf
  LINE(5,38)-(304,49),0,b
  LINE(7,40)-(302,47),0,bf

  LINE(3,53)-(306,66),9,bf
  LINE(5,54)-(304,65),0,b
  LINE(7,56)-(302,63),0,bf

  LINE(3,69)-(306,82),9,bf
  LINE(5,70)-(304,81),0,b
  LINE(7,72)-(302,79),0,bf

  LINE(3,85)-(208,98),9,bf
  LINE(5,86)-(206,97),0,b
  LINE(7,88)-(204,95),0,bf

  LINE(211,85)-(237,98),9,bf
  LINE(213,86)-(235,97),0,b
  LINE(215,88)-(233,95),0,bf

  LINE(240,85)-(306,98),9,bf
  LINE(242,86)-(304,97),0,b
  LINE(244,88)-(302,95),0,bf

BooleanGadgets:

  LINE(500,25)-(564,38),4,bf
  LINE(502,26)-(562,37),0,b

  LINE(500,50)-(564,63),9,bf
  LINE(502,51)-(562,62),0,b

' Our Intuitext Structures.  Much simpler this way!

  Move& Rp&(1),513&,34&
  Print "Enter"
  Move& Rp&(1),519&,59&
  PRINT "Bye!"
  SetDrMd& Rp&(1),1

END SUB

SUB MakeGad(n,l,t,w,h,type,v,max,nxt) STATIC
SHARED Wp&(),Gad&(),SpecInfo&(),StrBuf&()
SHARED MemType&

  Gad&(n) = AllocMem&(48,MemType&)

  StrBuf&(n) = AllocMem&(64,MemType&)
  SpecInfo&(n) = AllocMem&(64,MemType&)
  IF type <> 4 THEN S& = 0 ELSE S& = SpecInfo&(n)

' When allocating memory with the AllocMem& function, it is
' always simplest ti specify memory sizes in increments of
' eight bytes.  If we don't, exec will increase our requested
' amount to the next higher multiple of eight, anyway.

GadgetStructure:

  POKEL Gad&(n),nxt               ' points to next gadget
  POKEW Gad&(n)+4,l               ' left edge
  POKEW Gad&(n)+6,t               ' top edge
  POKEW Gad&(n)+8,w               ' width of gadget
  POKEW Gad&(n)+10,h              ' height of gadget
  POKEW Gad&(n)+12,0              ' flags (see see above)
  POKEW Gad&(n)+14,1              ' Activation type
  POKEW Gad&(n)+16,type           ' Gadget type (1, 3 or 4)
  POKEL Gad&(n)+18,0              ' Gadget render (borders)
  POKEL Gad&(n)+22,0              ' Select render (images)
  POKEL Gad&(n)+26,0              ' intuitext
  POKEL Gad&(n)+30,0              ' Mutual exclude
  POKEL Gad&(n)+34,S&             ' Special Info
  POKEW Gad&(n)+38,n              ' GadgetID
  POKEL Gad&(n)+40,0              ' UserData (not used here)

' Of the above items, gadget render, select render and
' intuitext can actually created easier using built-in
' AmigaBASIC functions rather than attempting to create the
' structures that are used normally in C and Assembly
' programming.  The borders are created using LINE functions
' while intuitext is created using PRINT.  Simple, huh?  The
' images item would be used if we wanted to use an alternate
' image when the gadget is selected.

SpecInfoStructure:

  IF type = 4 THEN ' if it's a STRING gadget

    POKEL SpecInfo&(n),StrBuf&(n)' Buffer
    POKEL SpecInfo&(n)+4,0        ' Undo buffer
    POKEW SpecInfo&(n)+8,0        ' position to start
    POKEW SpecInfo&(n)+10,max     ' max characters
    POKEW SpecInfo&(n)+12,0       ' display position
    POKEW SpecInfo&(n)+14,0       ' Undo position
    POKEW SpecInfo&(n)+16,0       ' current number of chars
    POKEW SpecInfo&(n)+18,v       ' number of visible chars
    POKEW SpecInfo&(n)+20,0       ' Current number displayed
    POKEL SpecInfo&(n)+22,0       ' CLeft (left offset)
    POKEL SpecInfo&(n)+26,0       ' CTop (top offset)
    POKEL SpecInfo&(n)+30,0       ' Layer (we use default)
    POKEL SpecInfo&(n)+34,0       ' LongInt (holds value)
    POKEL SpecInfo&(n)+38,0       ' Alternate Keymap (none)

  END IF

  AddGadget& Wp&(1),Gad&(n),n

END SUB

SUB Cleanup STATIC
SHARED Wp&(),GadCnt,Gad&(),SpecInfo&(),StrBuf&()

  WINDOW CLOSE 1
  SCREEN CLOSE 1
  FOR cnt = 1 to GadCnt
    FreeMem& Gad&(cnt),48
    FreeMem& StrBuf&(cnt),64
    FreeMem& SpecInfo&(cnt),64
  NEXT cnt
  LIBRARY CLOSE
  REM $IGNORE ON
  WINDOW 1,"BASIC",(0,0)-(617,186),31,-1
  REM $IGNORE OFF
  END

END SUB

' If this type of programming strikes you as your way to do
' things, I would strongly suggest that you look into the
' following two books:

'    Amiga Programmer's Handbook, VOL I
'      Eugene Mortimore              SYBEX  $24.95

'    Inside The Amiga
'      John Thomas Berry             SAMS   $22.95

' If you understand the basic aspects of what is being
' presented here, these two books will allow you to go even
' deeper into Intuition (and the other libraries) and create
' exceptional programs in AmigaBASIC.

' In our next installment, we'll take all of the sections that
' I have covered in this series and create a small data base
' that is fully Amiga-tized, as I discussed in last month's
' article on Style.  Until then...
```

## Amiga Public Domain Update

*Continued from page 101*

funny! This demo was the grand prize winner in the BADGE Killer Demo contest. This demo requires one megabyte in order to run from CLI, and 1.5 MB if you would like the luxury of running RGB from Workbench.

**Zeus:** by Greg Tsadilas and Jay Dawes

Here is another one of the winners in the BADGE Killer Demo Contest. If you have seen the Amiga 500 Test Flight Video or the Amiga 500 TV commercial, you have seen this stunning demo. Since there are only three graphic demos shown in the entire Amiga 500 TV commercial (one of them naturally being the Juggler), I think you can figure out which demo Zeus is. This demo also requires a megabyte of memory in order to run.

**Amoeba Invaders:** by Latenight Developments Corp.

For those of you who still love the classic arcade games, now you can play a faithful replication of Space Invaders on your Amiga. This Amiga version adds color and digitized sounds to the original version. You can use the joystick, mouse or even the keyboard to play Amoeba Invaders. If you use the keyboard, you can define the movement and fire keys to whatever pleases you.

**Keep:** by Tim Grantham

Amiga modem addicts should welcome this program. If you capture many messages at once for off-line reading later, Keep can become very convenient. Keep allows you to tag certain messages in a capture file for later saving. Once you have gone through all the messages in the capture file, Keep will save all the tagged messages as a separate text file. The original capture file is not molested. Keep will actually work with any text file that has lines of fewer than 120 characters each and has sections of text started off with a header string that never changes.

**LED:** by Mark Riley

It is known that the sound coming out of the Amiga is often degraded by the low-pass filter that filters all audio output starting at 7 KHz. The filter was originally installed to eliminate possible aliasing that can occur. However, aliasing doesn't occur often in the real world of Amiga sound, so the low-pass filter is more of a menace than a help. Commodore made a slight alteration on the Amiga 500 and 2000 that allows the low-pass filter to be disabled via software. Well LED is a program that allows you to actually turn off the low-pass filter. You may have been amazed by the Amiga's sound capabilities before, but you still haven't heard the Amiga at its best yet!

Next month I will cover the rest of the BADGE winning demos, plus many other programs. I have already collected over a dozen good Amiga public domain programs to review. So even if I am unlucky enough to receive no new Fish or AMICUS disks in the next couple of weeks, the April column will still be a huge one.

As always, I can be reached in the Amiga Zone on PeopleLink (ID: G KINSEY), or on the IDCMP BBS (617) 769-8444, 8 p.m.-8 a.m. If you have written a public domain/shareware/freely distributable program, or have obtained one that you think is worth mentioning to all Amiga owners, please attempt to contact me or write to *Commodore Magazine*. See you next month.

**Fish disks:** *For a catalog, send a SASE and four loose stamps, or $1 to: Fred Fish, 1346 W. 10th Place, Tempe, AZ 85281.*
**AMICUS Disks:** *$7 per disk, or send $1 for a catalog to: PiM Publications, P.O. Box 869, Fall River, MA 02722.*

## Adventure Road

*Continued from page 50*

is pre-set for "attack monster," which simplifies combat commands (often the most bewildering part of a dedicated role-playing game). Furthermore, function keys are player-definable so you can create your own adventure macros. On the Amiga you can click on an adjacent location with the mouse instead of typing "west," and you can undo your previous action (even if it killed you). Both the 128 and Amiga versions offer a four-color display and show your character's attributes with a bar chart.

In 1984 I asked Marc Blank, one of Infocom's founders, why they didn't install a feature that would draw the map onscreen while you played. "Isn't that what computers are supposed to do," I reasoned, "the drudgework like mapping?" Three years later, auto-mapping is a reality. Representing your current location and visible exits, boxes and lines now fill the top right part of the screen, and an indicator pinpoints your whereabouts. Once you've visited an adjoining location, it is added to the map of the immediate area. You've still got to draw one on paper, but this makes it much easier. (Some mazes and outdoor areas are randomized, using the same locations but arranged differently in each new game.) A Zoom feature lets you zero in on the nearest areas, and you get a general map of Quendor with the game.

The story begins near a small town, where you should explore the Rusty Tavern's wine cellar before venturing across the countryside. A return to Accardi-by-the-Sea, first visited in *Enchanter*, is in store. Remember how hard it was to get out of the Enchanter's Guild there? Now the problem is getting *in*. Other highlights of this journey include the town Thriff, where Cardinal Toolbox needs help against the deadly Christmas Tree monsters and a ride on an elevated skyway to find the Crocodile's Tear, an immense sapphire hidden in a jungle filled with savage bloodworms.

By weaving the two game-styles together in unexpected patterns, Moriarty has crafted a well-balanced game that will appeal to fans of *Ultima*-style games who've never played (or didn't enjoy) text adventures, as well as to hard-core Infocom fans who rarely (if ever) stray into role-playing territory. Moriarty is as funny as ever, stocking the wilds with monsters that parody the usual orcs and trolls: instead of wielding a sword, the Cruel Puppet "recites your nightly personal habits in excruciating detail."

Though *Nord and Bert* doesn't work (for me, at least), Infocom's other experiments have expanded the horizons of adventuredom in ways bound to please hard-core adventurers and likely to attract new ones. The only drawback is that *Hearts* is the only one available for the 64. If you're an Infocom aficionado, you should definitely get hold of a 128, because all their games won't be released for the Amiga.

### Clues of the Month

*Nord and Bert* is the first Infocom game with built-in InvisiClues, so you can just type "hint" for help. But you may need some with one of the gamestoppers in *Plundered Hearts*, which occurs in the library. Get the jcv, then take the dqqm (vtgcvkug qh rqygt). When the inqdg appears, consult something that came with the game for a clue (vqwej uv ukpkuvtc). In *Beyond Zork*, urwgga oquu in the wine cellar to boost dexterity so you can get the wine bottle. For light when your lantern goes out, use the cowngv. (Read twpgu through ykpg). Hang out in the Rusty Cellar for clues in the conversation. (Count back two letters to decode clues.)

*Continued from page 38*

left or right, up or down, and back and forth it is from the zero point. If you are comfortable with 3D geometry, this is no problem. If you aren't geometry-literate, you're probably confused. Congratulations and welcome to the *VS3D* experience.

Recognizing that script-based object design requires long hours with graph paper and a flexible brain, Aegis has included three program modules—EGG, Designer 3D and OCT—to make object creation a little easier.

EGG (Easy Geometry Generator) produces standard shapes—box, sphere, cone, cylinder and even a fractal patch (for irregular ground or mountains)—in sizes and proportions specified by the user.

Designer 3D (D3D) is an enhanced version of Colin French's public domain ROT program. Three on-screen windows provide front, side, top or bottom views of an object in progress. You use the mouse to click points into the boxes and shape the object. D3D objects can be created and then converted into *VS3D* objects. Unfortunately, you cannot edit *VS3D* objects with D3D.

OCT (Object Composition Tool) provides you with the ability to load one or more ready-made objects and transform or combine them into a single new object. With OCT you will be able to create 3D objects of unusual complexity. The problem here is that, like the rest of *VS3D*, OCT requires a sophisticated understanding of 3D geometry in order to join or change objects. Like EGG and D3D, OCT really isn't friendly; it's just a bit less complex than writing an object script file.

When the time comes to immortalize those precious animations, professionals will want to save them on a hard disk, frame by frame, and later assemble the images into a video animation using a single-frame video recorder. *VideoScape* claims a number of ways to accomplish this, including using the Amiga to control the frame-stopping of a single-frame recorder.

For those who lack access to expensive single-frame recording equipment, Aegis has provided a fifth module: Gary Bonham's PlayANIM. This utility will play back the ANIM files in real or near-real time for direct video recording. Because of the data compressing of the ANIM standard, it is possible to reproduce animations that would not otherwise fit in available RAM. By playing several ANIM files in sequence and editing them together, the user can make extended animations without single-frame equipment.

The User's Guide accompanying *VS3D* is sometimes confusing, particularly for beginners, but on the whole it deals effectively with the sophisticated ideas and terminology behind *VS3D*. Where it errs is in its order of presentation. After explaining how to load the program, the manual details every aspect of *VideoScape*'s four modules. Finally, in Chapter 10, the manual gets around to guiding the user through a sample animation. It's like explaining how to play football without letting a student near the field. A reordering of chapters and the addition of material dedicated to the training of the raw beginner might have eased some of the stumbling blocks in the program.

*VideoScape 3D* is a complex and intricate program largely because of the problems in conceiving and designing fully-dimensional objects. Realistically, Aegis Development can't be held to task, because three-dimensional geometry is a difficult concept to master, much less manipulate.

At the same time, Aegis might have assembled a more integrated and helpful set of tools to create 3D objects. The current array of utilities doesn't go far enough in helping the animator through this geometric ordeal. In defense of Aegis, however, the company has left the programming door open for others to produce friendlier, more powerful utilities for object design. In fact, third-party programmers are preparing ways to move object files to *VS3D* from other three-dimensional rendering programs such as Byte by Byte's *Sculpt 3-D*.

What is less forgivable in *VideoScape* is its passion for the guru. A few false moves in the generation of objects in animation and the Amiga derails in a non-recoverable system crash. Although experienced *VideoScape 3D* users will become skillful enough to reduce the number of visits with the guru, beginners should anticipate many frustrating "meditations" before they begin to master the ins and outs of the program.

The message is not to underrate *VideoScape 3D* as a layman's art utility any more than you would mistake its breathtaking animations for amateur scribblings. The demands of this program are just as formidable as its results. The price may suggest an upscale hobbyist's plaything, but *VideoScape 3D* is truly a low-priced professional tool that has the potential to put the Amiga at the forefront of high-quality computer animation.

Continued from pg. 36

lection, justification, spacing, window, etc.) which allows you to simply type and save or print documents. Because of this you don't have to delve deeply into the documentation until you want or need to define macros, use multiple headers or math/column features, mix type styles, install directory or system pathways, or merge information.

*WordPerfect's* options are easily accessed by both the mouse or keyboard. I think this dual input control will please both newcomers (who will be able to intuitively hunt and select features from the pull-down menus) as well as experienced typists who prefer the more traditional keyboard controls. Because each menu option lists the keystroke command's equivalent, most mouse users will unconsciously learn and probably switch to the keyboard commands as they become familiar with the word processor.

While I like the keyboard strokes for entering text, I have found the mouse can actually save me time when editing a document. This truth proved itself the first time I edited a text file downloaded from CompuServe's Amiga Forum. Before *WordPerfect*, editing and reformatting a text file filled with "hard return" codes was a boring and time consuming nuisance. But by using *WordPerfect's* mouse control, deleting unsightly code, reformatting the text, moving and removing blocks of text (though still monotonous), is much faster than via the keyboard.

While I am delighted with the product, there are things about *WordPerfect* I would change. For instance, I found some of its features oddly located. The program uses the ten function keys to access the main commands (a hold over from the program's IBM roots). But the Spell and Thesaurus features which I mentally combine are physically separated on the keyboard. To access the Speller you must press CTRL with F2, but to get to the Thesaurus you must press ALT and F1. The same poor logic was used to assign the List File command as F5 and the Date function as SHIFT and F5. To minimize the confusion of these arrangements, the program package comes with a plastic insert which fits the cavity above the function keys and lists all the commands assigned to those keys. A separate fold-out reference card lists all of the keyboard strokes required to summon all of the logic used by *WordPerfect's* programmers in assigning option keys—I deeply appreciate all the features they included.

Let me quickly add that you can reassign commands via the Macro Define option. For instance, I am accustomed to using the COMMODORE key and "B" to define text as bold type on my other word processors.

Users of other versions of *WordPerfect* will have no trouble at all moving over to the Amiga version. The program even comes with plastic overlays to put on the numeric keyboard to mark the keys like those of an IBM AT. When you are using *WordPerfect*, the numeric pad keys (just like the IBM version) default as cursor controls. When you want those keys to print as numbers you simply use the SHIFT or CAPS LOCK key with them. While this took a little getting used to (and I wasn't thrilled about putting plastic overlays on the keys) the system works very well and using the pad has become second nature.

The program will work with a single disk drive, but the frustration of such a limited arrangement (constantly changing disks) will soon have you either saving nickels and dimes for a second drive or climbing the walls. The single disk drive switch problem is magnified by the way the program handles customized tasks. For instance, if you call up a macro (a user-defined command to perform a repetitive task) the program summons the macro from disk the first time it is called—not from memory. If you call for a macro not located on the current disk, the program will prompt you to change disks and pauses until you do. This scheme can really slow you down with only one drive and still requires some planning to avoid with two. The best, and more logical solution around this problem is to install *WordPerfect* along with its Speller and Thesaurus on a hard drive. Lacking such a luxury, I have learned to manage with two drives. There may be a way to get around those disk swaps by assigning those tasks to RAM (which *WordPerfect* fully supports), but as yet I have not done so, and during a conversation with support personnel at WordPerfect Corporation I was advised against trying.

*WordPerfect's* manual is large (over 600 pages) and complete. It includes step-by-step instructions on duplicating your program disk, installing your printer and default settings using either a single drive, two drives or even a hard disk drive. Along with a complete reference section, the manual includes an extensive tutorial, helpful special feature appendix, glossary and index. Perhaps best of all, the manual includes WordPerfect Corporation's toll-free support telephone number. While preparing this review I used this technical support number five times and was never disappointed with the help I received.

Unlike many of the other Amiga word processors on the market, *WordPerfect* is not a graphic-oriented product. It is not intended for desktop publishing. You cannot mix IFF files nor can you use exotic type fonts like sapphire, emerald or garnet in your documents. *WordPerfect* is a professional word processor—period. You can however, create simple graphics using keyboard characters or draw borders with the keys if the need arises. If your printer supports underline, boldface, and expanded type, you can easily access those options with the program. In addition some dedicated desktop publishing systems (like *City Desk*) can handle WordPerfect files. First and foremost, this is a writer's tool. It is, at this writing, the most powerful and flexible dedicated word processor for the Amiga and one any serious writer or business user should consider. ■

## Beyond a Product Review

I know of no more enjoyable chore than trying, testing and then telling others about good software. So when I was assigned *WordPerfect* to review I was excited and for good reason. First, I was familiar with the IBM version and knew it was a wonderful, full-featured writing tool. Plus, a lot of hype preceded the program's release including the corporate heads of Commodore and WordPerfect getting together for a news brief. When a prereleased version of *WordPerfect* was shown at Spring COMDEX, all the critics left the show wagging favorably.

With that kind of build up, I too was ready to jump on the *WordPerfect* bandwagon. When Federal Express dropped off my review copy, I could hardly wait to start the review/adventure. I booted the program and—it crashed. I couldn't believe it. So I reread the installation section of the manual, carefully duplicated each step, and bang—it crashed again.

Surely something besides *WordPerfect* was plastering my system. I figured some poor chip had fatigued after the long hours of use I put them through daily. Determined to isolate the defect, I began a selective unit by unit testing procedure. With a mixed sigh of relief and disbelief, I

found the system was in perfect working order. Reluctantly, I called the WordPerfect technical support line, sure that they would scoff at my suggestion that *WordPerfect* has a bug. I was wrong. After two rings a female voice answered and almost immediately began apologizing for the problem. She explained that the master disk used to duplicate the first release of *WordPerfect* had itself been defective. Yes, despite the name, *WordPerfect* was less than perfect. Two weeks later I received the replacement disks.

Happy again, I copied the four program disks, repeated the set-up sequence, booted the program and began exploring. What I found, I loved. I knew this was the power-writing tool I needed for my Amiga. Then some curious system activity began. A few files I saved to disk were stored incorrectly, another was duplicated over and over until the entire disk was full, the speller menu for looking up a specific letter pattern went into hiding, and then the dreaded guru messages began returning.

Again I dialed the company's technical support number (thankfully, the WordPerfect Corporation had to pick up the tab for the call). I described the problems. Again the voice apologized and said they had heard most of the problems and asked what release date of version 4.1 I was using (the date is displayed when the HELP key is pressed). "Oh," they responded, "you need the version dated 9/28/87—all the bugs are out of it." The promised update arrived the next morning via overnight courier.

Thankfully the current version (9/28/87) I used for the review appears bug free. For a productivity program to deserve a spot in the marketplace, it must be bullet-proof—so far *WordPerfect* has lived up to its name and has deflected all the bullets I've aimed at it. Unlike a game or an educational tool, a defective business tool costs not only time, but also money when it fails. To date the program has cost me neither. So with a clear conscience, I can recommend it to anyone needing a power word processor.

Along the way to finishing this review I collected some facts which you should know:

- If you are using a version of *WordPerfect* 4.1 dated before September 28, call the company and request the newest version. The replacement will not cost you anything—not even postage (at this writing, version 4.1 of the program continues to be refined and improved). The older dated versions have serious problems and the company wants to replace them. Like any smart business they recognize their customers are important and want them to be happy with their product.
- Keep track of new versions (beyond 4.1) of *WordPerfect* when they are released. The company is constantly adding new features to their software or improving on existing features. For a minimum charge, the original owner of *WordPerfect* can update when new versions are released.
- If you have a problem or question, don't hesitate to use *WordPerfect's* toll-free support line. The people I spoke with were friendly, helpful and never condescending. Rather than offer patented answers, they took the time to duplicate the problems I encountered on their system (while on-line) and walked me through the solution.
- If you call and the technician cannot help you right away, ask them to call you back when they have an answer. They will call back. To date I haven't met a support team which answered the phone quicker, were more cheerful or more helpful than those at WordPerfect.
- Although the manual is complete and the tutorial very helpful, some of the instructions may still confuse the novice user. If you have problems and know someone who is fluent with the IBM version of WordPerfect, I suggest you ask them for help. The two versions are so similar (minus the mouse) that a session looking over a friend's shoulder should prove very helpful. Another aid you might consider is a video teacher. In researching *WordPerfect* for the review I came across a video teaching series which explains *WordPerfect* through a VCR. The tutorial is for the IBM version, but the instructions parallel the Amiga version. The video series is simply called *WordPerfect: Level I & II*, and is marketed by Computer Videos, 464 Kalamath St., Denver, CO 80204. Another source is your local book store or library. Both should have tutorial books written just for *WordPerfect*.

When you duplicate WordPerfect on another disk, be sure the disk is rated DD/DS (double density/double sided). The *WordPerfect* master disk is packed using both sides of the disk. So if you use a disk less than those standards, errors can creep in while it is being copied. Not observing this precaution may result in some untimely visits by the dreaded guru, followed by a system failure. Unfortunately, when I speak of the importance of this precaution, I speak from experience. C

## Bank Street School Filer

*Continued from pg. 34*

tains." A third window allows one to "stop" the search here or expand the search sentence with an "and/or" conjunction. Thus, the final search statement might read (in simple English):

"Find all records where the last name starts with 'S' and the category is 'student.'"

The sort routine follows the same procedure with general records arranged alphabetically, date fields either ascending or descending.

### Selecting Fields

Part of the built-in structure requires students to determine the type of fields. Possibilities include number, money, phone number, time, text, and "anything." This last field will accept numbers or text and can be used by students when they are unsure of the category their information would fit into. In all fields the student is allowed to enter data in a variety of ways without worrying about whether it will be accepted. For example, money entered as 15 will be reformatted by the program as $15.00.

### Advanced Options

*School Filer* contains a number of advanced options. A "computed" field allows one to average or total numerical fields. One may customize reports or use stored formats. There's also a multi-lined, text "comment" field that can be used in find routines. This comment field can be hidden to allow one to see more of the record on screen at one time. Finally one may position up to 50 fields, each of which may be 92 characters in length anywhere on screen. This range is plenty for any file one would use in a school situation. Final-

Another important plus of *School Filer* is its ability to utilize six prepared curriculum-related databases also from Sunburst. Sold separately these include *Animal Life, Astronomy, Endangered Species, North America, Space* and *United States.* These informative topics add an element of fun to learning worthwhile facts and databases at the same time.

### Conclusion

The beauty of *Bank Street School Filer* is in its friendly simplicity. Interesting canned databases will attract teachers and students, and students will create databases to solve problems in information management.

This program gives teachers the perfect unit on databases. *Bank Street School Filer* is a must in any class situation. ■

## Amiga Software Reviews/Terrorpods

*Continued from page 44*

When a game is stamped "arcade," it usually means the player is going to experience lots of bright colors, thundering sound and wrist-straining action. On the other hand, "strategy" games usually revolve around mental concentration where movement is divided into turns, and sound effects are used only to punctuate a few significant events. In the past, merging the two categories has been done through compromise—either the action was sacrificed in favor of strategy or strategy was forfeited to action. But *Terrorpods* successfully merges the two without compromising either. Like real life—where strategy (the mental process) and arcade (physical movement) actions are constant—the activity encountered in *Terrorpods* is non-stop. The view out of your D.S.V. shows a picture perfect, three-dimensional world where space ships land and take off, factories operate and invaders land, explore and destroy independently of your action. Best of all, the world created by *Terrorpods* is not bordered—if a pod (or any object you want to inspect) moves out of view, you can follow it with your D.S.V. or drover and eventually you will catch up. You can then pass the target, or circle it. Regardless, the display accurately depicts the activity—the close objects get bigger and show more detail while distant objects do the opposite. The game offers six difficulty levels—but I advise you to stay below level three unless you are suicidal. Thankfully, the game also includes an option to save your position. Beyond the ability to resurrect your carcass after the *Terrorpods* have fried your D.S.V., the game will pause when you summon the save screen. I found myself using this feature not just to save the game but to catch my breath. Because *Terrorpods*' realism and speed is so demanding, the ability to pause to collect your thoughts and plot strategy is a must if you hope to survive.

It is hard to appreciate the program without actually living through an assault by the Terrorpods. The game has the feel, action, sound, detail and atmosphere to make you feel you are experiencing a true invasion. The people at Psygnosis used the right formula for mixing arcade and strategy and have packed it in a believable format. To maximize the game's pleasure, I suggest you play it with the room lights turned off. The darkness surrounding the screen display completes the illusion of being involved in a deadly conflict. You may find yourself asking—is it real or is it Memorex? ■

## Amiga Software Reviews/Garrison

*Continued from page 46*

equivalent of confetti, and the machine locks up. The most annoying bug in *Garrison* is that when you find a medicine chest (worth 5000 Health points), they hardly ever work. 5000 Health points is a big help, and the non-functionality of the medicine chest makes a challenging game a lot more difficult. If you just want to have fun with *Garrison*, this may not bother you much, but if you are serious enough to want to complete all 128 levels, and find the magic herb that will cure Princess Angelique (the ultimate object of the game), this may drive you nuts.

To estimate how difficult it really is to finish all 128 levels, after a month of playing, I can still get through about 35 levels at best. I am playing one player, but I don't think two players really have a huge advantage. I know that two players can shoot twice as many monsters, but in two-player mode the health of the team (you have to think of the five characters as a team) deteriorates twice as fast, due to time and the magic orbs of the Conjurers hitting characters twice as often.

*Garrison* works just fine with external memory, and it even works fine with a 68010 installed in your Amiga instead of a 68000. Speaking of external memory, *Garrison* is the first game I have ever seen for the Amiga that actually needs external memory! Don't panic, 512K Amiga owners, *Garrison* runs just fine in a 512K Amiga. But, you need a megabyte of memory if you want the *Garrison* characters to have unique appearances. On a 512K Amiga all five characters look the same. This could cause some confusion for two-player games (not knowing which character was which), so I would recommend the extra memory here. *Garrison* uses two separate disks, but they don't take advantage of an external drive if you have one hooked up.

*Garrison* is copy-protected to the extreme of the data disk not being recognizable by AmigaDOS as an AmigaDOS disk. The game has barely any documentation, but what documentation there is suffices. *Garrison* does have a high score screen, but I recommend leaving the write protect notch on the data disk in the non-writeable position, since *Garrison* doesn't mind if it can't write to the disk.

In conclusion, if you like *Gauntlet*, you must check out *Garrison*! I should note that by the time this review is published, Mindscape should have a licensed version of *Gauntlet* out for the Amiga, but it will have to be fantastic to top *Garrison*. Have fun with this addicting game. ■

Continued from page 69

spell check option, but rumors suggest one may be offered in the future.

*Desktop VizaWrite* has been updated three times (Version 1.3 was used for this review). Erich Stein of Progressive Peripherals and Software says registered users of earlier versions can upgrade, free of charge by contacting PP&S.

## Scribble!

*Scribble!* from Micro-Search Systems was one of the first successful word processors offered on the Amiga. The program, which has seen two updates, is compatible with either V1.1 or V1.2 of Kickstart. The user can access all of the program's features by using the mouse and pull-down menus. Other features (search, open, insert mode, rapid cursor movement, etc.) can be accessed directly from the keyboard.

This one is structured more like the traditional word processors I'm accustomed to. It is strictly a tool for working with words—not graphics. I found its command sequences very easy to master. For instance, if you want to delete an entire line of text you press the ALT key and the letter "L" (for line). Or if you were in the process of searching a document for a specific string of text, you could continue the search by pressing ALT and "A" (for again).

Lovers of mouse input will be just as happy with the program's pull-down menus and point and select options. Like earlier word processors, this one uses dot commands to format the screen and printout display. Thus to set margins, justification or line spacing, you simply begin a line with a dot, followed by the command (".RM10" sets the right margin ten characters from the edge).

Editing tools include all the traditional ones: search and replace, block cut, copy and move, and insert or overstrike modes. Text can be displayed (and dumped to the printer) as normal, italic, bold, underlined or a combination of all of the above. The style can be applied as the text is written or changed later by highlighting text with the mouse and then restyling all the selected text.

The program comes with a good speller program. While this one's inventory is not as large as others, I found the 40,000-word list more than adequate. It allows you to check the spelling of either a selected word, the displayed page or an entire document. To check a word, you simply move the cursor to that word, then summon the speller with the mouse. If the speller does not recognize the word, it will offer correctly spelled words that come close to the word in question. You can either replace the word with one from the dictionary, edit the word yourself, skip the word or add it to your dictionary.

*Scribble!* does not display documents in the WYSIWYG format. Instead it uses a feature I have grown to appreciate over the years—the ability to dump your document to the screen as well as a printer. This option lets you preview on screen the way the manuscript will appear (margins, headers, footers and font styles) before spoiling a single sheet of paper. Because I've grown dependent upon this feature, I always look for it in the word processors

> *Scribble!*'s command sequences are very easy to master.

I'm going to use. Thus, I was delighted to see it here. While I like word processors which use the WYSIWYG format, I prefer those with a print to screen option for two reasons. (1) Entering text is normally quicker because the screen isn't constantly redrawn, and (2) the preview displays headers, footers, and page numbers which those using WYSIWYG format rarely do.

The program does have a few oddly placed commands. For one example: help screens are summoned by pressing the F1 and F2 keys rather than the Amiga's HELP key.

## WordPerfect

This well-known power processor has every feature a serious writer or business person could want. It combines powerful editing tools and file managing operations with macro controls. The program offers a mail-merge option, allows you to import non-*WordPerfect* files, plus it comes with an outline option which helps you organize your thoughts as well as improve your presentations. The user can display text in up to five columns, include multiple headers and footers and polish their efforts with the best speller/thesaurus available on any existing system. Top all that with the most complete, understandable user's manual yet published, and you can understand why "perfect" is in the title.

*WordPerfect* supports more printers than any product I've reviewed—nearly 200 printers are compatible. I suspect this news will please hundreds of users of exotic or older printers which the Amiga's Preferences doesn't yet support. At the

same time, the program does not fully support the printers selected from Preferences, but since all those offered in Preferences are included in the program's list, that should present no problem. Another plus is the fact that actual printing tasks are handled by a separate print utility, not the main program. Because of this, you can dump a file (or schedule several) to the printer and while the print command does its work, return to the editing screen and change, add or start an entirely different document.

I was very pleased with *WordPerfect*'s extensive DOS commands. File handling is done with a collection of DOS utilities which allow the user to save, retrieve, rename, copy, delete and examine files with a single keystroke or mouse click. Because none of the program's four disks are copy protected, you can install any or all on a hard disk.

Yet there are things about the program I don't like. Because the program is basically a clone (with some new mouse interface features) of the IBM word processor by the same name, its keyboard command structure is very similar to that one. Like the IBM version, it relies heavily on the CTRL, SHIFT and ALT keys in combination with the ten function keys. Users of the IBM version of WordPerfect will appreciate these carry-over commands, but having grown up away from Big Blue, I found some of the command sequences less than intuitive. For example, to activate the Speller you press the CTRL key and the F2 key. Wouldn't the letter "S" be easier to associate with that function? To minimize the confusion, the program comes with a plastic reference card which fits nicely in the cavity above the function keys.

*WordPerfect* combines powerful editing tools and file managing operations with macro controls.

*WordPerfect*'s manual is both huge and complete. Although novice users will be able to use the program straight out of the package, mastering it will take some time. Because you can tailor *WordPerfect* to fit your personal needs or whims, new users should expect to spend more than a few days unlocking all of the program's power and options.

One complaint I've heard from other *WordPerfect* users is the slow performance of the speller and thesaurus. Both programs are less than lightning fast for two reasons: (1) the operation of both is disk based and (2) the word count of each exceeds 115,000. No matter how fast the software's search routine is, it takes a while to spin a disk and compare that many words. But there are two solutions to that dilemma. If you have a hard disk, you can copy the speller and thesaurus files to that unit, and the access time will decrease dramatically. Lacking a hard disk, I chose the second route—RAM. By editing the Setup-Sequence I was able to install all the speller/thesaurus files to RAM:. With 2.5 megabytes, I have room for those files, *WordPerfect* and room for fairly lengthy documents (like this article). It takes a minute or so to install those files when I boot up, but the time saved checking and correcting errors more than repays the investment in time.

Beyond being a great word processor, the after-purchase support of this product is excellent. Registered owners of the program can receive (via toll-free number) support from WordPerfect's technical team any time they have a problem. I've used the support line—it is great.

At this writing, Version 4.1 is in the fourth revision. All three previous versions (prior to 9/28/87) had bugs. So, if you buy, be sure the date displayed when you press the HELP key is after 9/28/87.

## LPD Writer

*LPD Writer* from Digital Solutions is a powerful, friendly program. It includes all the features you would expect from a professional word processor, yet each option can be accessed from any of three directions. Commands can be issued via mouse-activated menus, from function key-activated menus or directly from the keyboard. This friendly solution to the dilemma of which interface to support should delight those who love the mouse, as well as those who hate the mouse and those who don't care how the job is done as long as it can be done.

Like most modern word processors, this one also uses the WYSIWYG format, but unlike its competition, it includes the header and footer lines as well in the screen display (even *WordPerfect* leaves those out of its display). Another option I appreciate is the ability to have the display either show or hide formatting codes. Those of us who grew up with word processors which displayed formatting codes will appreciate this option. For me at least, constantly displayed codes are easier to check and correct. Others, accustomed to word processors which hide their codes or those who are new to word processing will probably prefer *LPD*'s ability to display only what will eventually be dumped to paper. Regardless of your preference, the ability to choose is appreciated.

The program was designed with multitasking in mind, so you can run other programs (providing you have sufficient memory) at the same time you use *LPD*.

*LPD Write* commands can be issued via mouse-activated menus, from function key-activated menus or directly from the keyboard.

The program shows text enhancements on screen just as they will be reproduced by your printer, including subscripts and superscripts. Help screens are included and more than one document can be edited at the same time. There is also a mail-merge feature for quickly creating and printing form letters.

With one exception *LPD* has every feature I need to write, plus the speed and flexibility I insist upon. I was delighted with the program's logic and power, but (and there is *always* a but) I was mystified as to why the programmer selected to leave the "delete file" option out of the DOS commands. If you want to trash a file from your data disk, you must either remove it from the Workbench screen (using the mouse and the trashcan icon) or use a CLI window. I realize this approach will prevent novice users from accidentally losing valuable files, but I'm sure every serious user of the program would have happily forgone that minor security blanket in exchange for more powerful DOS support.

The program comes with little more than a skeleton of a speller program, but it allows you to add words to the main program or create spellers important for specific needs. For example, an architect might want a speller which contains words that will relate to his profession as well as the names of his clients. There is an advantage to this ability to create your own speller—speed. Most people's working vocabulary is actually rather small as compared to a dictionary of 100,000 words or more. If your speller contains only the words you use most often, and none of the ones you never use, it can check and cor-

rect your documents much faster. With that side of the speller story offered, I suspect 99% of the users of this program would still forego a little speed in exchange for a word-packed speller.

When *LPD Writer* was first released, the program disk was copy protected. Unlike most of the developers of software for the Amiga market, Digital Solutions felt such a protection scheme was necessary to insure their investment against would-be software pirates. Apparently, they have reconsidered that position. The newest versions of *LPD* use a "soft" protection which requires the user to find and copy different words from the manual each time they begin a writing session. This protection compromise allows legitimate owners to protect their investment by working with a copied disk instead of risking the original, while at the same time Digital Solutions feels their investment is secure. To the user, this means they need not worry about being without their word processor (should the copy fail) while waiting for a replacement disk, plus *LPD* can be installed on a hard disk. Registered owners of early version of *LPD Writer* should receive details on the exchange offer through the mail.

## Talker

*Talker* from Finally Software is not only the cheapest product on the market, but it offers one feature all the others forgot—speech. The program includes the essentials of a good word processor. You can cut, move and duplicate blocks of text, adjust margins, reformat text and justify sentences either right, left or center. Lines can be single or double spaced and the screen will style text either plain, bold,

> *Talker* includes all the essentials of a good word processor, and it talks!

italic or underline (or combinations thereof). If you need more than these basic editing features in your word processor, you'll have to look elsewhere. But for most personal use, letters school papers, notes, etc. the program is fine. Because *Talker* has fewer commands to remember, it is also the easiest to master. The mini-manual is clear and sufficient, although it weighs in at a bare bones 26 pages.

Best of all *Talker* will talk. While some may discard this feature as simply a curiosity, others will be endeared to it. For sight-impaired users, *Talker* is a godsend. With a simple keystroke (or swipe of the mouse) the program will shift modes from silent to speech. You can have the processor "read" your document back to you after you are finished, or have it read every character as you press the key, read every word or every sentence as they are completed. There are options to read selected paragraphs too. This ability allows those with failing sight to communicate, while it aids the rest of us in proofreading our work. One problem with proofing your own work is the fact that most of us see what we *meant* to write and not always what is on the page. Because of this human quirk, we often let typos and double or missed word errors creep into our work. But if you let *Talker* read the document back, it reads what you wrote, not what you intended to write. If you have young children in the house who are learning to read, the program can read them stories (or whatever) as well as help them learn to write. My family has found the program both delightful and helpful. If you don't like the sound of the default voice, you can adjust (robot, male or female) to please your ear.

> Before you can decide which program is best, you must decide how you will be using it.

While I could never recommend the program as the only word processor to own (it just doesn't have the power and options to compete in business), it has found a useful slot in my home as an educational tool. I suspect others (especially those handicapped one way or another) will find it even more useful. After using the program, I'm curious as to why so few software developers have included speech in their programs. Finally Software was one of the first to tap the Amiga's audio resources, hopefully others will follow.

*Talker* works with whichever printer is selected in Preferences and is started from Workbench, so you must insert the program disk after your Workbench screen appears or start it from your external drive.

## Conclusions

It is human nature to take 8 a.m.'s marvels for granted by 6 p.m. This holds true with word processing. I found features on

each program which delighted me as well as missed features I wished had been included.

I wish *LPD* had a more powerful Speller and more DOS control. I wish *WordPerfect* included an option to display and edit formatting codes on screen like *LPD*'s. I wish *Scribble!* included a thesaurus. I wish *VizaWrite* allowed you to wrap text around and through graphics and supported Preferences' printer. I wish *ProWrite* were faster and not so memory hungry, and I wish *Talker* included headers and footers and friendlier DOS options.

On all of them, I would have liked to have seen an option to toggle the mouse pointer in and out of view. Invariably it comes to rest, like a colored fly, over a text area I'm trying to edit. A simple keystroke command to toggle it out of view would have been appreciated. Why no one included this option in their program is a mystery. But I did find a solution to this irritant. I downloaded a short program called "MouseOff" from Q-Link, which does exactly what I wanted. (The program is on Q-Link's Amiga Alliance. It is a public domain program donated by Denny Jenkins of Columbus, OH. Thanks, Denny.)

As with any program, picking the right word processor for you will depend upon your needs. If you need a business quality product, you can't beat *WordPerfect*. By the same token, both *LPD* and *Scribble!* may have all the features you need at a much more affordable price. These two cross the line which separates business and personal software. But if you need to mix both graphics and text, your choice should be either *VizaWrite* or *ProWrite*. *ProWrite* has been on the market longer and will handle color, but *VizaWrite* by restricting you to black and white only, is more conservative of your system's memory. I view *ProWrite* as a great graphic handler with word processing abilities and *VizaWrite* as a good word processor with graphic abilities. *Talker*, on the other hand, is in a field by itself. It will handle the word processing chores of most home users, but is not geared for business. On the other hand its ability to speak makes it ideal for both sight-impaired individuals and young users. ■

***Editor's Note:*** *The Amiga software base is growing and changing weekly and we realize that this feature does not include every word processor for the Amiga. We wish to apologize to any companies producing word processors for the Amiga that we may have overlooked. In addition, some products such as* Kind Words *from The Disc Company, were not yet available at the time this was compiled. Watch for a review of* Kind Words *in an upcoming issue.*

## Writer Aides

Who doesn't appreciate a little help now and again? Word processors are perfect for translating our thoughts into words, but when it comes time to organize those thoughts or polish our text into a professional document, we are usually left to our own devices. Effective communication requires more than just putting words onto paper. Our words need to be carefully selected, well organized and properly presented.

While testing the different word processors for this issue, I came across two interesting and helpful utility programs as well as two stand-alone spell check programs, which help do just that. Having never been reluctant to accept a helping hand, I eagerly welcomed the chance to meet, face to keyboard, these impressive writer aides.

*Reason* from The Other Guys, a computerized proofreading system, is probably unlike any other program you've seen, unless you have access to AT&T's *Writer's Workbench. Reason* is the Amiga-size version of that powerful (and expensive—$1500) writing aide. It analyzes your completed documents for errors in five separate categories: prose, style, word analysis, structure and errors (spelling, punctuation, diction).

The best way to describe the program is to compare it to a personal English professor. Rather than telling you how to write, the program inspects your document (created with a word processor) and offers suggestions as to how it could be improved. For example, let's say you are writing a short story for a children's magazine. *Reason* can critique the text's style according to readability—to ensure that you are neither writing over nor under your intended audience's education level. It can also offer suggestions on how to improve the general diction of the text or flag possible sexist terms. If the program feels you have overused a phrase or word, it will flag those too. It can check for spelling, double words and split infinitive problems. It will even proofread the document for punctuation errors—and suggest corrections. Like a good English teacher, *Reason* offers advice, but does not force you to abide nor homogenize your writing style. Whether to use its advice is your decision.

The advice and critiques *Reason* offers can be displayed on screen for immediate feedback, or dumped to a printer or disk file for future reference. The program does not include functions to edit your document. Thus, after considering *Reason*'s advice, you must edit the file using your word processor.

The original AT&T version of this program was designed to help business executives improve their writing/communication skills. Because of its background, *Reason* is perfect for business use, but after testing the program I'm sure anyone interested in improved writing skills will find it helpful. The program's single drawback is its price. Joe Neilsen, of the Other Guys, tells me the package is priced higher than they would like because they must collect royalties paid to AT&T for the portions of *Reason* derived from *Writer's Workbench*.

*Outline!*, a thought processor from PAR Software, is the second writing aide I particularly like. Ever since I fell in love with Broderbund's *Thinking Cap* for the 64, I'd been on the lookout for a similar program for my Amiga. *Outline!* lets you organize thoughts intuitively. Using word processing-like editing tools (cut, paste, move), the program lets you quickly put your thoughts on screen and then rearrange them. I can remember my high school English teacher harping over and over about the importance of organizing our thoughts in an outline before beginning a term paper. In retrospect I recognize the wisdom of her lesson, but as we all know, outlining a project is usually boring, always time consuming and difficult to adjust if you decide to add or move a topic. With those complaints in mind, the developers of *Outline!* carefully designed a program which removes all the negative attributes of outlining.

To begin you simply type the first thought that comes into mind. Then you add the second, third, etc. until you have covered all the important topics. You are free to use the mouse to move the topics around until they are in the proper order. To branch off of a main topic, you simply place the cursor over the topic head and press RETURN. A branch topic is automatically opened. If you want to move or erase areas of the outline, you can define the area with the block option and proceed

just as you would with your word processor.

The finished outline can be dumped to a disk (for future reference or editing) or your printer in either condensed form (show only topic heads) or expanded form (showing the entire outline). A real plus is the ability to load the outline file directly into your word processor and expand it into a topic there.

As a word processing aide, *Outline!* is wonderful, but I've found it just as useful preparing notes for college lectures. I'm sure as time goes by I will find other uses. Among the suggested uses in *Outline!*'s manual are: list maker for recipes, gifts, addresses and phone numbers, or creating an index for a book or manual.

The one word processing utility I will not be without is a program to check my documents for spelling errors. I am a poor speller. No one who has ever read the first draft of anything I've written could testify otherwise. So it comes as no surprise that when word processors are compared, I find it difficult not to lean favorably toward those with the better spell check options. Because the Amiga allows multitasking, several good, independent, spell checkers have come to the market. Two that I have used and like are *Promise* (The Other Guys) and *LexCheck* (CDA). Both have very healthy word lists (over 90,000), can handle files created with the six word processors mentioned in the main article and allow the user to add words to the dictionary. When compared with the spell check which comes with *WordPerfect*, both of these programs were able to check and correct identical documents faster. The programs will even check the spelling of documents created with *ProWrite* and *VizaWrite* as long as the check is performed before graphics are introduced.

I'm sure there are other equally useful utility programs out there just waiting to assist us all. These four are mentioned simply because they are the ones I've used. The bottom line is—you are not alone. If you need help organizing your thoughts, polishing a document or verifying spelling, help is as close as your Amiga. ■

## Amiga Word Processor Vendors

**The following products and publishers are mentioned in this article.**

**Desktop VizaWrite** $149.95
Progressive Peripherals & Software
464 Kalamath St.
Denver, CO 80204
(303) 825-4144

**LexCheck** $29.95
Complete Data Automation
561 N. Main St.
Yreka, CA 96097
(916) 842-3431

**LPD Writer** $119.95
Digital Solutions, Inc.
2-30 Wertheim Ct.
Richmond Hill, Ontario L4B 1B9
Canada
(416) 731-8775

**Outline!** $49.95
PAR Software, Inc.
P.O. Box 1089
Vancouver, WA 98666
(206) 695-1368

**ProWrite** $124.95
New Horizons Software
P.O. Box 43167
Austin, TX 78745
(512) 329-6215

**Promise** $49.99
**Reason** $395.00
The Other Guys
55 N. Main St.
Suite 301-D
Logan, UT 84321
(800) 942-9402 (801) 753-7620

**Scribble!** $99.95
Micro-Systems Software, Inc.
12798 W. Forest Hill Blvd.
Suite 202
W. Palm Beach, FL 33414
(305) 790-0770

**Talker** $69.95
Finally Software, Inc.
4000 MacArthur Blvd.
Suite 3000
Newport Beach, CA 92663
(415) 564-5903

**WordPerfect** $395.00
WordPerfect Corporation
288 W. Center St.
Orem, UT 84057
(801) 277-4020
■



*Continued from page 42*

the scenery does not change. Once you've played this game several times, you are grasping for something new—a billboard, a different road, anything, just a change of scenery. After including the before-mentioned bird droppings, why did they not include windshield wipers?

Having completed *Test Drive* with all five cars, I ran across several bugs in the program. The first bug I encountered had to do with the way the gearshift is displayed. The gearshift seems to be choppy and almost an afterthought rather than a part of the game. The second bug I encountered was after I had crashed my car for the fifth time, and I reselected the type of car I wanted. When the car first appeared, the dashboard and gearshift were gone, and I got a famous Guru Meditation Error. Despite these complaints, I found many good points as well.

Perhaps the most interesting concept of the game is the rearview mirror. It was obviously not an afterthought, and it has great detail. The way the mirror displays the distance between cars after you have passed them is truly a plus! I will also give them credit for the fact that the dashboard, gearshift, speed and performance are noticeably different depending on the type of car you choose. This makes you feel like you are actually driving the car that you have chosen!

*Test Drive* combines good graphics, sound and music to keep you coming back to the game. I have had a lot of fun playing *Test Drive*, and besides, where else can you drive the sports car of your dream at over 170 mph through a 30 mph zone?

### Hints and Tips

When you first get the game, start out with something that does not have as much zip as the 173 mph Lamborghini. The Porsche is one of the best all-around cars for beginners. It combines good speed and handling along the mountain road to help you get the "feel" of the game.

Have you been pulled over too many times by the police? Then try this: get up a speed of over 110 mph, and nothing will stop you. You're just a blur on their radar and no match for their cruisers.

Remember, before you accelerate when starting out from the gas station or beginning a new game, shift into first. If you don't, you're history even before you get started.

When your rpm indicator gets in the red area, it is time for you to shift into the next highest gear, or your engine is gone! ■

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simple depictions of your surroundings in the game.

While playing a game, you may get tired of looking at the same pictures for the hundredth time. A good text-and-graphics adventure allows you to turn the pictures off or make them smaller on the screen. If and when you do get sick of the graphics, turn them off and give your eyes a rest.

A picture on-screen may not show in detail what is described in the text. If it doesn't, you have a bad adventure game. It's not too hard to draw a picture from a text description, if you are the one who wrote that text and originated the idea in your mind. However, an artist hired to create graphics fantasy may not be able to envision the world as well as the designer. Problems like this happen less frequently, but badly designed text-and-graphics adventures are still occasionally released.

Don't let the graphics on the screen hamper the pictures you may have been forming inside your head. This is where text-and-graphics adventures run into problems. The purpose of the accompanying picture is to give form or reality to the imagery in your head. Any other effect should be ignored.

The second type of text-and-graphics adventure is more interesting in that objects are deleted and added to the screen, and sometimes the pictures come to life. You get more accurate depictions of your location in the game. In some cases, depending on the graphics, you may not need to map the adventure, although I have encountered only a few like this.

Look carefully at the objects on the screen. Sometimes, because of their orientation, color or location on the screen, it is obvious that an item can be manipulated. Experiment with the objects you see on the screen and see what moves.

When you have found a text-and-graphics game that has you anticipating each new image, you know you have found a good one.

Examples of the first type of text-and-graphics adventure are: *The Guild of Thieves*, *The Pawn*, *The Hobbit*, *The Fellowship of the Rings*, *Jewels of Darkness* and *Knight Orc*. Examples of the second type are: *Transylvania*, *Dragonworld*, *Mindshadow Dark Lord*, *The Serpent's Star* and *Blade of Blackpoole*.

> Role-playing games bring together all elements of adventuring into one package.

## Role-Playing Games

Role-playing games are an entirely different breed of adventure which requires an entirely different approach to play successfully. Made popular by the enormous success of fantasy games such as *Dungeons and Dragons*, role-playing games are character-oriented. The whole game revolves around the quest of a character or group of characters. In their quest, these characters find and use magic objects, fight monsters and other characters, search for treasure, explore lands and islands, travel through different dimensions, meet danger and take risks at every turn to take them to the ultimate goal.

From mapping to character generation and usage, role-playing games bring together all elements of adventuring into one package. This is why so many people prefer to play role-playing games. The amount of strategy needed to play them is enormous, and the game is truly based upon your actions and characteristics, as opposed to static games that rely only upon your ability to use objects and visit different places.

The first and most important part of any role-playing game involves setting up your character or band of characters. Each game accomplishes this necessity in a different way. In any case, your character is assigned different attributes, such as strength and intelligence, and the rest of the game experience relies on how well your character, through his/her attributes, is able to deal with the situations in the game.

The art of mapping takes on a new form in role-playing games. No longer is there a set rule for mapping a game, but rather a series of guidelines for making representations that can help you with the game. Mapping depends on the specific game, but it definitely does not require boxes and lines to connect the boxes. Mapping in a role-playing game is used for one of two purposes—to draw towns, dungeons and symmetrical or matrix-oriented places and to draw outside terrain. Each purpose has its own method.

Because of the symmetrical nature of dungeons, they can best be represented on graph paper. It's a good idea to get large-scale graph paper to give you enough room to make notations within the grid. Use letters and numbers to indicate special objects or characters within a room and a different grid block for each room. Draw lines around a block to indicate which walls are present, and use colored pencils to show differences between objects and characters or to distinguish types of objects or characters. A good example of a role-playing game for which this mapping method would work well is *Bard's Tale*.

> By the end of the game, you will know your character so well you won't want to leave him/her to go on to a new game.

The second type of mapping requires keeping track of the terrain of a game. There are only a couple of hints I can give you here, because of the variance in terrain shapes from one game to the next. If you can, use a screen dump or the pause function of a game to draw a map as accurately as you can. Mapping terrain depends on your drawing abilities and only proves effective when you can draw the general shape or limits of a type of terrain or land. Use colored pencils to indicate towns and buildings on the map. Their location on the map doesn't have to be perfect—only their relative locations should be kept intact. The *Ultima* games will give you plenty of practice in mapping terrain. If you've got a good memory, don't worry about mapping land.

One of the most important elements of a role-playing game package is the manual. Make sure that you know all of the goals of the game (both long and short term) before starting out. Also, make sure that you know what each and every key on the keyboard does in the game.

Role-playing games assign a function to most letters of the alphabet. Pressing a key most certainly will do something. Fluency with game commands makes a better role-playing adventurer. If a game has a reference card, keep it at your side.

You have to get a strong understanding of your attributes and how they affect your progress. Get a feel for your characteristics and how they change as you perform certain actions. Try to increase them or decrease them and make notes about what these actions were.

Know the terrain on which you will be traveling. Some terrain affects movement differently from other terrain. Finding out how quickly you can move affects how long you can live with a monster on your

tail. Different monsters appear in different types of terrain, as well. Read the monster descriptions in your manual to find out where you can expect to see certain monsters. Also, understand how much power monsters possess on different levels and, especially, when to run.

Get used to the way your character responds to different situations. By the end of the game, you will know your character so well that you won't want to leave him/her to go on to a new game. This is why some games or series of games allow characters from other games to be used—to keep your alternate personality alive and well.

If, however, your character is not getting along too well in the game, you have two options: fight until he/she dies or restart with a new character. The latter option is better, because a weak character may never be able to fully win a game. Struggling through a role-playing game like that wastes a lot of valuable time and energy.

Combat is a very important part of role-playing games. There are two types of combat in such games. The first type involves one on one combat with an enemy. It requires some knowledge of the weapon you are using and the strengths of the enemy and yourself.

The second type, called tactical combat, involves multiple characters. Carried out like a war game, this type of combat takes as little as a few seconds or as long as many hours. In either case, careful examination of the opponent(s) is necessary, and you must keep a level head.

Most role-playing games have towns. Towns are very important to your success because of the shops, people and opportunities that they possess. Know what they possess (weapons shop, magic shop, casino, chapel, etc.), and mark them down on your map of the town. Most shop owners will allow bargaining for their items. In such a case, start haggling at a low price and slowly raise your price to meet the shop owner's. Write down how much shops charge for items and weigh those prices against those in other towns so that you know where to go the next time you play the adventure.

Magic is often an essential part of role-playing games. Know what each spell does and how much it costs. You may have to be holding certain objects to make a spell or magic item work. Finding out what objects are needed is half of the challenge; knowing the right time to use a magic item is the other half.

Talk to other characters in the game. Most of the time, they have valuable advice to offer—things you may not find out about anywhere else. Gambling is also an important part of a lot of role-playing games. Money is needed to buy necessities of the games and more often than not killing monsters, finding hidden treasures and gambling are your only sources

> Magic is often an essential part of role-playing games.

for money. Learning how to gamble effectively will make your character rich.

Finally, don't be discouraged if a role-playing game is taking a long while. Most games often last for many hours and rewards come slowly. Get some friends together for help and don't give up hope. Reaching the end of a role-playing game gives a strong feeling of accomplishment!

Examples of role-playing games are: *Roadwar 2000* and *Roadwar Europa*, *Might and Magic Book One*, *Temple of Apshai Trilogy*, *Questron*, *Bard's Tale*, *Starfleet I*, *Legacy of the Ancients*, *Elite*, *Telengard* and *The Standing Stones*.

## Graphic Adventures

Graphic adventures have very little keyboard use, and the game moves along as quickly and smoothly as the player can move as in an arcade game. Most use a joystick

> Graphic adventures are usually more fun than others because of their arcade-like qualities.

and usually no mapping is required. *Pitfall!* is an exception, in that there are so many rooms that in order to finish the game, you have to map the screens. Games like *Pharaoh's Curse* have a lot of game screens but make you rely on your memory. Adventures like *Impossible Mission* give you a map on the screen. The primary emphasis of these games is fun.

The bulk of a graphic adventure requires you to move a character on the screen with a joystick. Keys are used for such things as throwing magic bolts or throwing a bomb. In graphic adventures, your joystick is the key to opening the door to another world. Joysticks test your skill, perseverance and ability to instantly recognize other characters and objects as opposed to solving puzzles and commanding characters.

Graphic adventures usually have some kind of score. It's a good idea to know how you get points in a game (and how many) so that you can maximize your score with the least hassle. Some graphic games also have elements of role-playing games in that they also have energy levels, intelligence levels or other attributes that vary throughout the game (like *Demon Stalkers*). Learn how to control these attributes and use them to make the game easier.

There are usually a lot of rooms or screens in this type of game. Knowing how to get from one room to the next while avoiding obstacles is part of the fun of a graphics adventure. Obstacles are right before your eyes, and whether you jump over them or blow them away, getting past them introduces a challenge into the game.

Graphic adventures are usually more fun than others because of their arcade-like qualities and immediate results. You usually can't save games in progress, so set aside some time for a serious attempt.

The graphics are not just pretty pictures. More often than not, you can touch or pick up objects (just by moving your character over them). This is where object knowledge comes into play. You have to know which objects are useful and which to stay away from.

Most adventures of this type use the joystick button for something: jumping, picking up items, firing bullets or weapons or transforming the character. Feel comfortable with the joystick and the character's movements up on the screen in relation to the joystick.

Above all, keep your ultimate goal in mind. Take notes if you can, to help others to play, since mapping is not necessary. Explain exactly what to do and exactly what items you need to be successful. Graphic adventures usually have a limited set of instructions, with a lot of important personal exploration necessary, making the adventure equally challenging for everyone.

Examples of graphic adventures are: *Spell of Destruction*, *Dragon's Lair*, *The Last Ninja*, *Druid*, *Gemstone Warrior*, *Howard the Duck*, *Spiderbot*, *Adventure Construction Set*, *Zoids* and *Rad Warrior*.

## Response/Command-Oriented Games

Response/command-oriented games are the most unusual

and least common. They depend on putting together commands and responses from menus (usually by using a joystick) in such games as *Law of the West* and *Maniac Mansion*, responding to information given to you in such games as *Portal* and *Perry Mason* and playing the game using icons and menus in such games as *Shadowfire* and *Hacker II*. They all have an artificial feeling in that you don't directly move a character, but use the controls that move the character (as in *Titanic: The Recovery Mission*) externally.

Since the games are controlled by menus or options, you must know what to do with them. In *Titanic: The Recovery Mission*, you have to decide whether to host a press conference or to phone prospective contributors. In *Hacker II*, you have to choose between monitors and decide whether to output recorded tape onto the monitors or allow live coverage. Options like these are game-specific. Suffice it to say that you must know which choices to make and when, so that you concentrate more on playing the game.

Most of these games are dialogue-based in that the commands that move the game along are executed in the form of dialogue. Typical dialogue-based games are: *Accolade's Comics*, *Sinbad* (only somewhat) and *Law of the West*. Choose your words carefully, because most of your responses can't be retracted. You'll be talking to other characters a lot, so make sure that you take note of the way they act when you say something. Remember the kind of answers and questions that they like.

Mystery games are based entirely upon clues and puzzles, with a lot of emphasis on dialogue among characters and accusations aimed at suspects. For this reason, some mystery games have been included in this category. Mystery games rely upon use of the brain. Again, it seems that the game is more mind-controlled and external from the characters. Don't let this feeling affect your reasoning powers.

Mysteries also offer a lot of information for perusal and examination by the player. Make sure that you write it down as it is given to you. Other than this, the only writing that you need to do in a mystery adventure involves any special facts, specifics or unique commands that you have used and what they do.

> Unfortunately, it usually takes a long while to finish a game in the high technology category.

Some of the games in this category are just plain fun (*Law of the West*), some are more serious (*Portal*), and some require more thought (*Perry Mason*). The object of your questions and responses is to pick up facts and data. Assimilate these, because success depends on it. Just remember, you are "assembling" a command for the game, silly commands do nothing, and legitimate commands will get you everywhere.

Examples of response/command-oriented games are: *Portal, Accolade's Comics, Killed Until Dead, Suspended, Law of the West, Labyrinth, Titanic: The Recovery Mission, Maniac Mansion, Perry Mason, Shadowfire, Hacker II* and *221 B Baker St.*

## Hi-Tech Adventure Games

High technology adventure games are the latest class established indirectly by software companies. By picking and choosing elements from the five classes, designers have put together "super adventures." High technology adventure games are the result of all of the others. They have their own distinct flavor, offer much for such a small price and give you the feeling, through incredible detail, that the designer is right there with you.

High technology adventures best utilize the power of the computers for which they are written and use it intelligently. Although most of them are for machines with higher memory (Amiga), there are many available that fill up the RAM of smaller computers (Commodore 64 and 128).

These adventures take what works well in each of the five other categories and combines them into a single unique entity. *Leisure Suit Larry in the Land of the Lounge Lizards*, for example, uses text, menus, windows and animated graphics to present a delightful adventure. *Faery Tale Adventure* uses graphic animation, menus and role-playing characters to tell a tale. These two games and all others in the category make maximal use of the graphics capabilities of the machines, so that you can rely on them to give you useful information.

If games in this category have text, you can be sure that the parser is pretty good. In *Leisure Suit Larry*, the text is not emphasized as much; therefore, it is limited. However, in the *King's Quest* series, the parser is very good.

The use of windows in the high technology genre spans numerous games from *Beyond Zork* (the first all-text game with windows) to *Pirates!* (use of many multiple windows).

High technology adventure games are usually very easy to play physically—just execute commands and move characters. They use the keyboard and joystick or mouse for better game play and include reference cards so that there is no doubt about what is possible in the game. Most games play so well that you get lost instantly. Cinemaware adventures from Mindscape are billed as interactive movies—and that they are. Most high technology games have the player sitting in front of the computer in awe of the excellence of the presentation of the game.

Unfortunately, it usually takes a long while to finish a game in this category. It's a good idea to have someone sit down with you to help (or to just ogle the monitor). What you need to write down depends on the game. Adventures like the *King's Quest* series may need mapping, but those like *Leisure Suit Larry* and *Sinbad* aren't geography-intensive games. In any event, assimilate all of the techniques you have learned from playing games in the other five categories to play high technology adventure games. Be prepared for the challenge of your life!

Examples of high technology adventure games are: *Arazok's Tomb, Space Quest, King's Quest* series, *Leisure Suit Larry in the Land of the Lounge Lizards*, Cinemaware series, *Alien Fires 2199 A.D., Faery Tale Adventure, Pirates!, Beyond Zork* and *Border Zone*.

Adventure games have come a long way from that little brick building in *Adventure*. There are so many advances being made every day that it won't be long before someone tries to put all of Tolkien's world onto one disk. The technology exists—all that is needed is someone to tap it. Some of the trends that will shape adventure games in the future are: use of real time in adventures (*Border Zone*), mixing graphics and text intelligently (*Beyond Zork*), using the full power of a machine (*The Faery Tale Adventure*), flippy disks (one game on each side of a disk), better parsers, tougher puzzles, larger game geographies and the intelligent assimilation of package, game and player into one entity. The possibilities are endless! In the meantime, take advantage of existing technology and go start a new adventure! Happy questing. ■

*Continued from page 14*

it can't run other programs as fast as if it were disabled. A few quick experiments revealed a slowdown of between six and 17%.

To disable the Wedge, enter @Q. To enable it again, enter SYS 52224.

*Stanley L. Anderson*
*Tishomingo, OK*

**64 Sprite Finder:** This is quite valuable for those who like to use sprites made by others. Once the sprite is in memory, load and run this program. (You may have to use your reset button if the sprite program disables the RESTORE key).

Use the plus and minus keys to search through memory for sprites. The Space Bar toggles between hi-res and multi-color sprites, and the equal key will print the sprite data to the screen.

*Rajesh Batra*
*Cincinnati, OH*

```
100 T$="SPRITE FINDER - RAJESH BATRA"
110 T$=T$+CHR$(141)+"[DOWN]
    CONTROLS ARE +,-,= AND SPACE"
120 T=0:M$="HIRES":B=200:POKE 53281,11
    :POKE 53280,12:POKE 650,128
130 POKE 53269,1:POKE 53248,100
    :POKE 53249,100:POKE 53287,1
    :POKE 53285,0:POKE 53286,4
140 PRINT"[CLEAR]";T$:PRINT"[DOWN]
    BLOCK:";B;TAB(18);"MODE:";M$
    :POKE 2040,B:POKE 53276,T
150 GET A$:IF A$=""THEN 150
160 IF A$="+"THEN B=B+1
    :IF B>254 THEN B=254
170 IF A$="-"THEN B=B-1
    :IF B<1 THEN B=1
180 IF A$=" "THEN 210
190 IF A$="="THEN POKE 53249,200
    :GOTO 240
200 GOTO 140
210 IF T=1 THEN T=0:M$="HIRES"
    :GOTO 140
220 IF T=0 THEN T=1:M$="MULTI"
230 GOTO 140
240 PRINT:FOR P=0 TO 62
    :PRINT PEEK(B*64+P);",";:NEXT
    :GOTO 250
250 PRINT:PRINT"[DOWN]PRESS C TO
    CONTINUE"
260 GET A$:IF A$<>"C"THEN 260
270 POKE 53249,100:GOTO 140
```

**64 to 128 conversion:** Commodore's Super Expander 64 cartridge is available many places for about $20 and adds music and graphics commands to the 64. With minor modifications to the programs, you can run many 128 music and graphics programs on the 64 with Super Expander, including many of those found in "Tips and Tricks!"

*Michael Hall*
*DeSoto, TX*

**128 simultaneous text and graphics:** One of the problems in programming 128 graphics is that you can't see your typing and its results at the same time. If you use one of the split-screen graphics modes you can get around this to some extent, but it's not very satisfactory for graphics that cover the entire screen or for graphics that take more than a few lines of programming.

This program lets you have your cake and eat it too! It switches the screen rapidly between text and graphics modes, so that both displays are visible at once. There's some flickering on the screen, of course, but it's a small price to pay for the convenience of seeing everything together.

You can disable the program by hitting STOP and RESTORE, and you can activate it again by executing a SYS2816.

The CIRCLE statement in line 80 is only for demonstration purposes. You can eliminate it from the version you save for use as a utility.

*Marco A. Gonzalez Hagelsieb*
*Guadalajara, Mexico*

```
10 REM 128 SIMULTANEOUS TEXT &
   GRAPHICS
20 REM BY MARCO A. GONZALEZ HAGELSIEB
30 FOR J=2816 TO 2837:READ K:POKE J,K
   :CS=CS+K:NEXT:IF CS=2226 THEN 50
40 PRINT"DATA ERROR. CHECK TYPING."
   :END
50 GRAPHIC 1,1:GRAPHIC 0,1
60 PRINT"NOW YOU CAN HAVE TEXT AND
   GRAPHICS":PRINT"ON SCREEN AT THE
   SAME TIME!!
70 SYS 2816
80 CIRCLE 1,160,100,85,70
90 DATA 120,169,013,141,020,003,169,
   011
91 DATA 141,021,003,088,096,169,001,
   069
92 DATA 216,133,216,076,101,250
```

**128 Star Wars Theme:** The accompanying program plays several bars of this well-known theme. When typing it in, the similarities in several of the lines let you use your screen editing skills to save typing time. Lines 30 and 40 are identical, so after you enter line 30, move your cursor up, change the line number and press RETURN. Do a LIST and observe that both lines are present in memory.

The first parts of lines 50, 60 and 70 are also identical. Type line 50 up to the place where they differ, then use the same screen editing technique to duplicate the partial line into lines 60 and 70. Add the tail ends to lines 50-70, and your typing job is finished.

Examining this short song can reveal some of the workings of the PLAY statement. The T7 in line 20 determines what "instrument" will be playing the song. Try changing the 7 to other numbers.

Inside the PLAY statements in lines 30 through 70, notice the many places where O and a number are combined. The O is the letter O, standing for Octave. Don't make the mistake of typing a zero instead.

Also notice the W, H, Q and I symbols for whole, half, quarter and eighth notes respectively. Once you set one of these note lengths, all subsequent notes are played at the same length. (Until you enter another length, of course). In line 30, the "WC G IF E D" gives you whole notes for C and G, and eighth notes for F, E and D.

*Bryan Kollar*
*Nanticoke, PA*

```
10 REM STAR WARS THEME - BRYAN KOLLAR
20 TEMPO 20 : PLAY "T7"
30 PLAY "O3 WC G IF E D O4 WC O3 HG
   IF E D O4 WC O3 HG IF E F WD R"
40 PLAY "O3 WC G IF E D O4 WC O3 HG
   IF E D O4 WC O3 HG IF E F WD R"
50 PLAY "O2 HG WA QA O3 F E D C IC D
   E D R O2 A HB"
60 PLAY "O2 HG WA QA O3 F E D C WG D"
70 PLAY "O2 HG WA QA O3 F E D C IC D
   E D R O2 A B R R O3 HG O4 QC O3 B
   A R G F E R HC WG R"
```

**128 Border Killer:** This program is actually pretty amazing. For 96 bytes, this little gem will turn off your top and bottom borders. With the borders off, you can effortlessly display sprites in the once forbidden zone. Not only that, but since it's interrupt driven, it can remain in the background while other programs are running.

If you want to use the graphics screen then you must first enable it before typing SYS2816 to activate this program. To disable the program and the graphics screen, enter SYS2900.

Making the pokes in line 30 will change the color of your screen and of the "invisible" border area.
*Joel Gutteridge*
*Drexel Hill, PA*

```
10 REM 128 BORDER KILLER-J. GUTTERIDGE
20 REM SYS2816 ENABLES, SYS2900 KILLS
30 REM POKE2898,BKGD:POKE2899,BORDER
40 FOR A=2816 TO A+95:READ B$
50 CK=CK+DEC(B$):POKE A,DEC(B$):NEXT
60 IF CK<>10526 THEN PRINT"DATA ERROR"
   :END
70 DATA A9,11,8D,14,03,A9,0B,8D
71 DATA 15,03,A9,FF,8D,50,0B,58
72 DATA 60,AD,52,0B,8D,51,0B,AD
73 DATA 19,D0,8D,19,D0,EE,50,0B
74 DATA AD,50,0B,F0,18,A9,FF,8D
75 DATA 50,0B,A9,19,8D,11,D0,A9
76 DATA F8,8D,12,D0,AD,51,0B,8D
77 DATA 21,D0,4C,65,FA,A9,17,8D
78 DATA 11,D0,A9,2F,8D,12,D0,AD
79 DATA 53,0B,8D,21,D0,4C,65,FA
80 DATA 00,00,00,00,78,20,84,FF
81 DATA 20,81,FF,20,8A,FF,58,60
```

**Plus/4 resources:** Some Plus/4 owners think they've been deserted and their machine declared an orphan. But thanks to the cohesiveness of computer owners, neither of those worries is justified. The 700-member Plus/4 Users Group continues to be a clearinghouse for Plus/4 information, hardware and software. Membership costs $20 per year, and buys an eight-issue subscription to PLUG, their professionally written newsletter. Members may also use the PLUG disk library for a minimal copying and postage charge.

A recent issue of PLUG ran to 12 pages, including a resource directory, software library listings, letters from members and classified ads.

To join, send $20 ($25 outside US/Canada/Mexico) to PLUG, Box 1001, Monterey, CA 93942, U.S.A. (Don't you just love the binary mailbox? Why didn't I think of that?) Do the overworked staff a favor: don't write for information about joining; just join. The information you get will be worth many times your modest investment.
*Louis F. Sander*
*Pittsburgh, PA*

**Saving receipts:** Whenever I buy a new game, I keep the plastic cover and sales receipt. I put them in an envelope marked with the name of the game they belong to. Then if I need to contact the manufacturer, I have all the information about my purchase right there in one handy place. They often ask for a copy of the original sales slip.
*Rodney Weese*
*Hanover, PA*

**Software documentation:** If the documentation on your commercial software seems poor or completely lacking, check the directory on the disk. Sometimes manufacturers put the documentation directly on the disk in a readable file. To investigate this, load the directory and look for files with SEQ after the filename.

These files are sequential files and can be read with many word processors or with a sequential file reader program such as the SPRINT program provided on the Q-Link disk.

Often the filename will indicate just what the SEQ file contains.
*Rebecca Begley*
*Louisville, KY*

**Blitz!** All programs compiled by this compiler start at memory location 2076. The text strings from the original BASIC remain intact, and can be examined with a machine language monitor.
*Geoff Buesing*
*Gahanna, OH*

**Capture:** If you have the Epyx Fastload cartridge enabled, your Capture disks won't load. But if you put this boot program on those disks, it will disable Fastload then load the proper programs:

```
10 REM BOOT
20 POKE 816,165 : POKE 817,244
30 LOAD "BT.*",8,1
```

*John Elliott*
*Pacifica, CA*

***Easy Script* and the MPS1000 printer:** There are much better ways of using this printer than the one in November's column. The secret is to use escape codes to control the printer's built-in capabilities. In *Easy Script*, escape codes are created by pressing F1 then the up arrow character then one or more characters. The characters are case sensitive, so be sure to shift them when called for. Here are the escape sequences to get into and out of several modes:

Emphasized - ESC E and ESC F
Underlined - ESC -1 and ESC -0
Double Strike - ESC G and ESC H
Enlarged - ESC W1 and ESC W0
12 C.P.I. - ESC : and ESC @
Near Letter Quality - ESC x1 and ESC x0
Superscript - ESC S0 and ESC T
Subscript - ESC S1 and ESC T

*Unknown Contributor*

**Fastload cartridge, Tip I:** It's only partially explained in the instructions, but you can use Fastload to automatically load and run the first program on a disk's directory, no matter what it is. If you have many programs on a disk, make the first one a menu program and you'll never have to type LOAD and RUN again.

An easy way to load other BASIC programs without using a menu is to type:

/PROGRAMNAME*<shifted RUN/STOP>

You have to type the asterisk, even if you've typed the program name in full. Of course, you can type only enough of the program name to make it unique, and the asterisk will act as a wild card.

*Jack M. Hirsch*
*Rockville, MD*

**Fastload cartridge, Tip II:** Drive Not Ready errors usually result from your disk door being open or not having a disk inserted. But sometimes the drive just decides not to be ready, and that can be a real aggravation. If you get one of these errors while using the Fastload cartridge, you can usually correct it by typing @U; <RETURN> or @U + <RETURN>. The same commands often work when your drive is recalcitrant in other ways.

*Rickey Joe*
*Palisades Park, NJ*

**Fastload cartridge, Tip III:** If you wish to reset your computer but keep Fastload intact, enter the monitor by entering an exclamation point, then enter G FCE2 at the period prompt.

*Phil Brubaker*
*Russell, NY*

**Fastload and Hesmon:** The normal command to enter Hesmon is SYS64738. Unfortunately, this command also disables Fastload. To enter Hesmon without causing this problem, use the command SYS36466.

*Dan Kollmorgen*
*O'Fallon, MO*

***Fleet System 2:*** An undocumented feature of this program is the high-speed cursor you can get if you press F1 prior to using the cursor up or down key.

*Scott A. Warner*
*Bethel Park, PA*

***Fontmaster:*** This program lets you create or modify typefaces and save them to disk. Although Xetec discourages it, these new typefaces can be saved onto the original *Fontmaster* disk, where there is plenty of room for them.

I discovered that the original fonts cannot be changed, replaced or erased, but that their names can be changed. So I used the *Fontmaster* commands to rename the ENGLISH font as ENGLISH0, then saved my modified font as ENGLISH. The result is that the Commodore F3 command, which automatically loads eight of the manufacturer's fonts, now loads my ENGLISH instead of their ENGLISH0. When I want to use the original version, I just load it individually using its new name.

By the way, the *Fontmaster* disk may have a few typefaces not mentioned in the manual. Use the F8 key to find their names so they can be loaded individually.

*Bernard J. Sussman*
*Washington, D.C.*

**General Ledger:** Info Designs has created a useful and low-cost accounting package here, but it has a bug when used with my Gemini 10X printer and Card? + G interface. Each report begins with a line of asterisks; but with my printer setup, the asterisks are in an expanded typeface that won't fit on a single line.

My solution is to turn the printer off and back on again right before printing a report.

I also found that by adding a line to the boot program, I could put my interface into transparent mode by software. (Previously, I had to set my dipswitches each time I used a different program). The line I added was:

```
12 OPEN4,4,24 : PRINT#4 : CLOSE4
```

*Jim Berg*
*Greenville, SC*

**GEOS:** On booting GEOS, the default print driver is the first one on the disk. You can make your own driver the default by doing this: click the first print driver's icon once, then go to the command bar and under the FILE select the Rename option.

Then simply rename the file to that of your own printer's print driver. Since GEOS searches only for the name, it will now select your printer as the default.

If you have a single disk drive and a memory expansion module, you have the fastest disk copying system you've ever seen. Copy your source disk (from the desktop under Disk) into your expansion module. Then insert your destination disk and copy the expansion module into the physical disk drive.

*John Kuhne*
*Newmarket, Ontario*

***geoWrite:*** To get rid of a troublesome tab on the ruler, just touch it once with the pointer to highlight it, then drag it beyond the margin indicated by the M symbol.

To avoid formatting problems in *geoWrite V2.0+*, always insert your headers and footers before you begin. *geoWrite* will occasionally botch headers inserted later, and when you try to reformat your document the system will crash.

*John Kuhne*
*Newmarket, Ontario*

***Koala Painter:*** You've probably noticed the special symbol on the front of all the *Koala Painter* filenames. It represents the color for orange, and can be produced by holding down the COMMODORE key and pressing the 1 key. (You have to be between two quotation marks, of course!) So if you need to access these files outside of *Koala Painter*, just make this character the first one in the filename.

*Jim Partin*
*Cincinnati, OH*

***Magic Desk:*** If you don't want to use the joystick in port 2 to move the finger, you can use these keys to move it:

| | |
|---|---|
| CTRL A | — Down |
| CTRL D | — Left |
| CTRL Crsr Left | — Down |
| CTRL G | — Right |
| CTRL J | — Fire Button |

*James Schnur*
*Redington Beach, FL*

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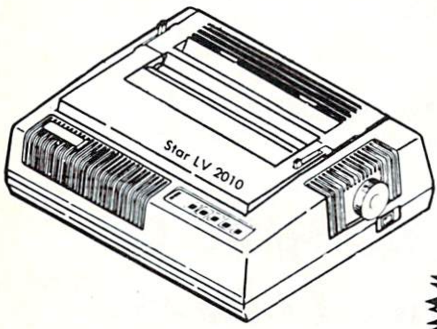
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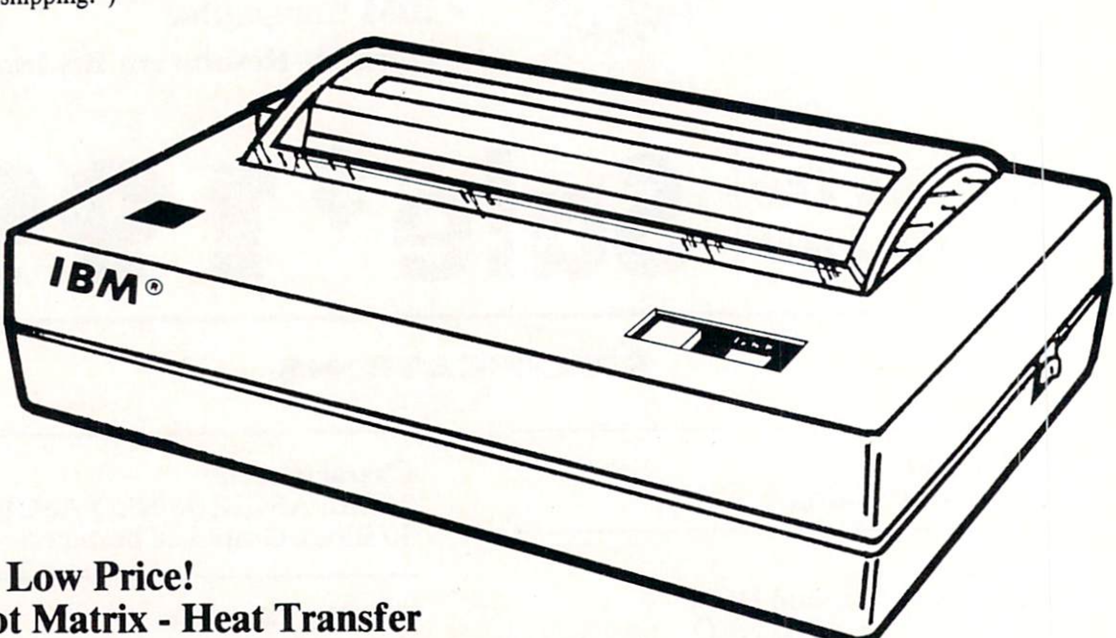
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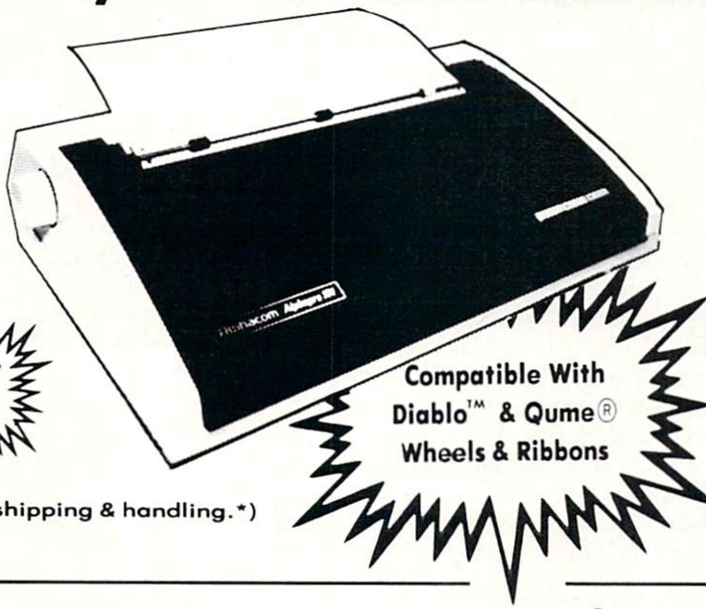
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The programs which appear in this magazine have been run, tested and checked for bugs and errors. After a program is tested, it is printed on a letter quality printer with some formatting changes. This listing is then photographed directly and printed in the magazine. Using this method ensures the most error-free program listings possible.

Whenever you see a word inside brackets, such as [DOWN], the word represents a keystroke or series of keystrokes on the keyboard. The word [DOWN] would be entered by pressing the cursor-down key. If multiple keystrokes are required, the number will directly follow the word. For example, [DOWN4] would mean to press the cursor-down key four times. If there are multiple words within one set of brackets, enter the keystrokes directly after one another. For example, [DOWN, RIGHT2] would mean to press the cursor-down key once and then the cursor-right key twice. Note: Do not enter the commas.

In addition to these graphic symbols, the keyboard graphics are all represented by a word and a letter. The word is either SHFT or CMD and represents the SHIFT key or the Commodore key. The letter is one of the letters on the keyboard. The combination [SHFT E] would be entered by holding down the SHIFT key and pressing the E. A number following the letter tells you how many times to type the letter. For example, [SHFT A4,CMD B3] would mean to hold the SHIFT key and press the A four times, then hold down the Commodore key and press the B three times.

The following chart tells you the keys to press for any word or words inside of brackets. Refer to this chart whenever you aren't sure what keys to press. The little graphic next to the keystrokes shows you what you will see on the screen.

## SYNTAX ERROR

This is by far the most common error encountered while entering a program. Usually (sorry folks) this means that you have typed something incorrectly on the line the syntax error refers to. If you get the message "?Syntax Error Break In Line 270", type LIST 270 and press RETURN. This will list line 270 to the screen. Look for any non-obvious mistakes like a zero in place of an O or vice-versa. Check for semicolons and colons reversed and extra or missing parenthesis. All of these things will cause a syntax error.

There is only one time a syntax error will tell you the "wrong" line to look at. If the line the syntax error refers to has a function call (i.e., FN A(3)), the syntax error may be in the line that defines the function, rather than the line named in the error message. Look for a line near the beginning of the program (usually) that has DEF FN A(X) in it with an equation following it. Look for a typo in the equation part of this definition.

## ILLEGAL QUANTITY ERROR

This is another common error message. This can also be caused by a typing error, but it is a little harder to find. Once again, list the line number that the error message refers to. There is probably a poke statement on this line. If there is, then the error is referring to what is trying to be poked. A number must be in the range of zero to 255 to be poke-able. For example, the statement POKE 1024,260 would produce an illegal quantity error because 260 is greater than 255.

Most often, the value being poked is a variable (A,X...). This error is telling you that this variable is out of range. If the variable is being read from data statements, then the problem is somewhere in the data statements. Check the data statements for missing commas or other typos.

If the variable is not coming from data statements, then the problem will be a little harder to find. Check each line that contains the variable for typing mistakes.

## OUT OF DATA ERROR

This error message is always related to the data statements in a program. If this error occurs, it means that the program has run out of data items before it was supposed to. It is usually caused by a problem or typo in the data statements. Check first to see if you have left out a whole line of data. Next, check for missing commas between numbers. Reading data from a page of a magazine can be a strain on the brain, so use a ruler or a piece of paper or anything else to help you keep track of where you are as you enter the data.

## OTHER PROBLEMS

It is important to remember that the 64 and the PET/CBM computers will only accept a line up to 80 characters long. The VIC 20 will accept a line up to 88 characters long. Sometimes you will find a line in a program that runs over this number of characters. This is not a mistake in the listing. Sometimes programmers get so carried away crunching programs that they use abbreviated commands to get more than 80 (or 88) characters on one line. You can enter these lines by abbreviating the commands when you enter the line. The abbreviations for BASIC commands are on pages 133-134 of the VIC 20 user guide and 130-131 of the Commodore 64 user's guide.

If you type a line that is longer than 80 (or 88) characters, the computer will act as if everything is ok, until you press RETURN. Then, a syntax error will be displayed (without a line number). Many people write that the computer gives them a syntax error when they type the line, or that the computer refuses to accept a line. Both of these problems are results of typing a line of more than 80 (or 88) characters.

"[HOME]" = UNSHIFTED CLR/ HOME
"[CLEAR]" = SHIFTED CLR/HOME
"[DOWN]" = CURSOR DOWN
"[UP]" = CURSOR UP
"[RIGHT]" = CURSOR RIGHT
"[LEFT]" = CURSOR LEFT
"[RVS]" = CONTROL 9
"[RVOFF]" = CONTROL 0
"[BLACK]" = CONTROL 1
"[WHITE]" = CONTROL 2
"[RED]" = CONTROL 3
"[CYAN]" = CONTROL 4
"[PURPLE]" = CONTROL 5
"[GREEN]" = CONTROL 6
"[BLUE]" = CONTROL 7
"[YELLOW]" = CONTROL 8
"[ORANGE]" = COMMODORE 1
"[BROWN]" = COMMODORE 2
"[L. RED]" = COMMODORE 3
"[GRAY1]" = COMMODORE 4
"[GRAY2]" = COMMODORE 5
"[L. GREEN]" = COMMODORE 6
"[L. BLUE]" = COMMODORE 7
"[GRAY3]" = COMMODORE 8
"[F1]" = F1
"[F2]" = F2
"[F3]" = F3
"[F4]" = F4
"[F5]" = F5
"[F6]" = F6
"[F7]" = F7
"[F8]" = F8
"[POUND]" = ENGLISH POUND
"[SHFT ^]" = PI SYMBOL
"[^]" = UP ARROW

GRAPHIC SYMBOLS WILL BE REPRESENTED AS EITHER THE LETTERS SHFT (SHIFT) AND A KEY ("[SHFT Q,SHFT J,SHFT D,SHFT S]") OR THE LETTERS CMDR (COMMODORE) AND A KEY ("[CMDR Q,CMDR G,COMDR Y,CMDR H]"). IF A SYMBOL IS REPEATED, THE NUMBER OF REPITITIONS WILL BE DIRECTLY AFTER THE KEY AND BEFORE THE COMMA ("[SPACE3,SHFT S4,CMDR M2]").

## THE PROGRAM WON'T RUN!!

This is the hardest of problems to resolve; no error message is displayed, but the program just doesn't run. This can be caused by many small mistakes typing a program in. First check that the program was written for the computer you are using. Check to see if you have left out any lines of the program. Check each line of the program for typos or missing parts. Finally, press the RUN/STOP key while the program is "running". Write down the line the program broke at and try to follow the program backwards from this point, looking for problems.

## IF ALL ELSE FAILS

You've come to the end of your rope. You can't get the program to run and you can't find any errors in your typing. What do you do? As always, we suggest that you try a local user group for help. In a group of even just a dozen members, someone is bound to have typed in the same program. The user group may also have the program on a library disk and be willing to make a copy for you.

If you do get a working copy, be sure to compare it to your own version so that you can learn from your errors and increase you understanding of programming.

If you live in the country, don't have a local user group, or you simply can't get any help, write to us. If you do write to us, include the following information about the program you are having problems with:

The name of the program
The issue of the magazine it was in
The computer you are using
Any error messages and the line numbers
Anything displayed on the screen
A printout of your listing (if possible)

All of this information is helpful in answering your questions about why a program doesn't work. A letter that simply states "I get an error in line 250 whenever I run the program" doesn't give us much to go on. Send your questions to:

*Commodore Magazine*
1200 Wilson Drive
West Chester, PA 19380
ATTN: Program Problem

Have fun with the programs!

# HOW TO USE THE MAGAZINE ENTRY PROGRAMS

The Magazine Entry Programs on the next pages are two BASIC machine language programs that will assist you in entering the programs in this magazine correctly. There are versions for both the Commodore 64 and the Commodore 128. Once the program is in place, it works its magic without you having to do anything else. The program will not let you enter a line if there is a typing mistake on it, and better yet, it identifies the kind of error for you.

## Getting Started

Type in the Magazine Entry Program carefully and save it as you go along (just in case). Once the whole program is typed in, save it again on tape or disk. Now RUN the program. The word POKING will appear on the top of the screen with a number. The number will increment from 49152 up to 49900 (4864-5545 on the 128) and just lets you know that the program is running. If everything is ok, the program will finish running and say DONE. Then type NEW. If there is a problem with the data statements, the program will tell you where to find the problem. Otherwise the program will say "mistake in data statements." Check to see if commas are missing, or if you have used periods instead of commas. Also check the individual data items.

Once the program has run, it is in memory ready to go. To activate the program type SYS49152 (SYS4864 on the 128), and press RETURN. You are now ready to enter the programs from the magazine. To disable the Entry Program, just type KILL [RETURN] on the 64 or SYS4867 on the 128.

The checksums for each line are the same for both the 64 and 128, so you can enter your 64 programs on the 128 if you'd like.

## Typing the Programs

All the BASIC program listings in this magazine that are for the 64 or 128 have an apostrophe followed by four letters at the end of the line (e.g., 'ACDF). If you plan to use the Magazine Entry Program to enter your programs, the apostrophe and letters **should** be entered along with the rest of the line. This is a checksum that the Magazine Entry Program uses.

Enter the line and the letters at the end and then press RETURN, just as you normally would.

If the line is entered correctly, a bell is sounded and the line is entered into the computer's memory (without the characters at the end).

If a mistake was made while entering the line, a noise is sounded and an error message is displayed. Read the error message, then press any key to erase the message and correct the line.

## IMPORTANT

If the Magazine Entry Program sees a mistake on a line, it **does not** enter that line into memory. This makes it impossible to enter a line incorrectly.

## Error Messages and What They Mean

There are five error messages that the Magazine Entry Program uses. Here they are, along with what they mean and how to fix them.

**NO CHECKSUM:** This means that you forgot to enter the apostrophe and the four letters at the end of the line. Move the cursor to the end of the line you just typed and enter the checksum.

**QUOTE:** This means that you forgot (or added) a quote mark somewhere in the line. Check the line in the magazine and correct the quote.

**KEYWORD:** This means that you have either forgotten a command or spelled one of the BASIC keywords (GOTO, PRINT . .) incorrectly. Check the line in the magazine again and check your spelling.

**# OF CHARACTERS:** This means that you have either entered extra characters or missed some characters. Check the line in the magazine again. This error message will also occur if you misspell a BASIC command, but create another keyword in doing so. For example, if you misspell PRINT as PRONT, the 64 sees the letter P and R, the BASIC keyword ON and then the letter T. Because it sees the keyword ON, it thinks you've got too many characters, instead of a simple misspelling. Check spelling of BASIC commands if you can't find anything else wrong.

**UNIDENTIFIED:** This means that you have either made a simple spelling error, you typed the wrong line number, or you typed the checksum incorrectly. Spelling errors could be the wrong number of spaces inside quotes, a variable spelled wrong, or a word misspelled. Check the line in the magazine again and correct the mistake.

```
10 PRINT"[CLEAR]POKING -";
20 P=49152 :REM $CØØØ  (END AT
   49900/$C2EC)
3Ø READ A$:IF A$="END"THEN 11Ø
4Ø L=ASC(MID$(A$,2,1))
5Ø H=ASC(MID$(A$,1,1))
6Ø L=L-48:IF L>9 THEN L=L-7
7Ø H=H-48:IF H>9 THEN H=H-7
8Ø PRINT"[HOME,RIGHT12]"P;
9Ø IF H>15 OR L>15 THEN PRINT
   :PRINT"DATA ERROR IN LINE";
   1ØØØ+INT((P-49152)/8):STOP
1ØØ B=H*16+L:POKE P,B:T=T+B:P=P+1
   :GOTO 3Ø
11Ø IF T<>862ØØ THEN PRINT
   :PRINT"MISTAKE IN DATA --> CHECK
   DATA STATEMENTS":END
12Ø PRINT"DONE":END
1ØØØ DATA 4C,1F,CØ,ØØ,ØØ,ØØ,ØØ,ØØ
1ØØ1 DATA ØØ,ØØ,ØØ,ØØ,ØØ,ØD,ØØ,21
1ØØ2 DATA C1,27,C1,2F,C1,3F,C1,4C
1ØØ3 DATA C1,EA,EA,EA,4C,54,CØ,A2
1ØØ4 DATA Ø5,BD,19,CØ,95,73,CA,1Ø
1ØØ5 DATA F8,6Ø,6Ø,AØ,Ø3,B9,ØØ,Ø2
1ØØ6 DATA D9,Ø4,C1,DØ,F5,88,1Ø,F5
1ØØ7 DATA AØ,Ø5,B9,A2,E3,99,73,ØØ
1ØØ8 DATA 88,1Ø,F7,A9,ØØ,8D,18,D4
1ØØ9 DATA 4C,EF,CØ,E6,7A,DØ,Ø2,E6
1Ø1Ø DATA 7B,4C,79,ØØ,A5,9D,FØ,F3
1Ø11 DATA A5,7A,C9,FF,DØ,ED,A5,7B
1Ø12 DATA C9,Ø1,DØ,E7,2Ø,2B,CØ,AD
1Ø13 DATA ØØ,Ø2,2Ø,74,CØ,9Ø,DC,AØ
1Ø14 DATA ØØ,4C,A9,C1,C9,3Ø,3Ø,Ø6
1Ø15 DATA C9,3A,1Ø,Ø2,38,6Ø,18,6Ø
1Ø16 DATA C8,B1,7A,C9,2Ø,DØ,Ø3,C8
1Ø17 DATA DØ,F7,B1,7A,6Ø,18,C8,B1
1Ø18 DATA 7A,FØ,37,C9,22,FØ,F5,6D
1Ø19 DATA Ø3,CØ,8D,Ø3,CØ,AD,Ø4,CØ
1Ø2Ø DATA 69,ØØ,8D,Ø4,CØ,4C,8E,CØ
1Ø21 DATA 18,6D,Ø5,CØ,8D,Ø5,CØ,9Ø
1Ø22 DATA Ø3,EE,Ø6,CØ,EE,Ø9,CØ,4C
1Ø23 DATA CE,C1,18,6D,Ø8,CØ,8D,Ø8
1Ø24 DATA CØ,9Ø,Ø3,EE,Ø7,CØ,EE,ØA
1Ø25 DATA CØ,6Ø,ØA,A8,B9,ØF,CØ,85
1Ø26 DATA FB,B9,1Ø,CØ,85,FC,AØ,ØØ
1Ø27 DATA A9,12,2Ø,D2,FF,B1,FB,FØ
1Ø28 DATA Ø6,2Ø,D2,FF,C8,DØ,F6,2Ø
1Ø29 DATA BC,C2,2Ø,E4,FF,FØ,FB,AØ
1Ø3Ø DATA 18,B9,Ø8,C1,2Ø,D2,FF,88
1Ø31 DATA 1Ø,F7,68,68,A9,ØØ,8D,ØØ
1Ø32 DATA Ø2,4C,74,A4,4B,49,4C,4C
1Ø33 DATA 91,91,ØD,2Ø,2Ø,2Ø,2Ø,2Ø
1Ø34 DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø
1Ø35 DATA 2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,2Ø,91
1Ø36 DATA ØD,51,55,4F,54,45,ØØ,4B
1Ø37 DATA 45,59,57,4F,52,44,ØØ,23
1Ø38 DATA 2Ø,4F,46,2Ø,43,48,41,52
1Ø39 DATA 41,43,54,45,52,53,ØØ,55
1Ø4Ø DATA 4E,49,44,45,4E,54,49,46
1Ø41 DATA 49,45,44,ØØ,4E,4F,2Ø,43
1Ø42 DATA 48,45,43,4B,53,55,4D,ØØ
1Ø43 DATA C8,B1,7A,DØ,FB,84,FD,CØ
1Ø44 DATA Ø9,1Ø,Ø3,4C,84,C1,88,88
1Ø45 DATA 88,88,88,B1,7A,C9,27,DØ
1Ø46 DATA 13,A9,ØØ,91,7A,C8,A2,ØØ
1Ø47 DATA B1,7A,9D,3C,Ø3,C8,E8,EØ
1Ø48 DATA Ø4,DØ,F5,6Ø,A9,Ø4,4C,CA
1Ø49 DATA CØ,AØ,ØØ,B9,ØØ,Ø2,99,4Ø
1Ø5Ø DATA Ø3,FØ,FØ,C8,DØ,F5,AØ,ØØ
1Ø51 DATA B9,4Ø,Ø3,FØ,E6,99,ØØ,Ø2
1Ø52 DATA C8,DØ,F5,2Ø,96,C1,4C,12
1Ø53 DATA C2,AØ,Ø9,A9,ØØ,99,Ø3,CØ
1Ø54 DATA 8D,3C,Ø3,88,1Ø,F7,A9,8Ø
1Ø55 DATA 85,Ø2,AØ,ØØ,2Ø,58,C1,2Ø
1Ø56 DATA 89,C1,2Ø,ED,C1,E6,7A,E6
1Ø57 DATA 7B,2Ø,7C,A5,AØ,ØØ,2Ø,8Ø
1Ø58 DATA CØ,FØ,DØ,24,Ø2,FØ,Ø6,4C
1Ø59 DATA A8,CØ,4C,CE,C1,C9,22,DØ
1Ø6Ø DATA Ø6,2Ø,8D,CØ,4C,CE,C1,2Ø
1Ø61 DATA BA,CØ,4C,CE,C1,AØ,ØØ,B9
1Ø62 DATA ØØ,Ø2,2Ø,74,CØ,C8,9Ø,ØA
1Ø63 DATA 18,6D,Ø7,CØ,8D,Ø7,CØ,4C
1Ø64 DATA EF,C1,88,A2,ØØ,B9,ØØ,Ø2
1Ø65 DATA 9D,ØØ,Ø2,FØ,Ø4,E8,C8,DØ
1Ø66 DATA F4,6Ø,18,AD,Ø9,CØ,69,41
1Ø67 DATA 8D,Ø9,CØ,38,AD,ØA,CØ,E9
1Ø68 DATA 19,9Ø,Ø6,8D,ØA,CØ,4C,1C
1Ø69 DATA C2,AD,ØA,CØ,69,41,8D,ØA
1Ø7Ø DATA CØ,AD,Ø3,CØ,6D,Ø5,CØ,48
1Ø71 DATA AD,Ø4,CØ,6D,Ø6,CØ,8D,ØC
1Ø72 DATA CØ,68,6D,Ø8,CØ,8D,ØB,CØ
1Ø73 DATA AD,ØC,CØ,6D,Ø7,CØ,8D,ØC
1Ø74 DATA CØ,38,E9,19,9Ø,Ø6,8D,ØC
1Ø75 DATA CØ,4C,52,C2,AD,ØC,CØ,69
1Ø76 DATA 41,8D,ØC,CØ,AD,ØB,CØ,E9
1Ø77 DATA 19,9Ø,Ø6,8D,ØB,CØ,4C,67
1Ø78 DATA C2,AD,ØB,CØ,69,41,8D,ØB
1Ø79 DATA CØ,AØ,Ø1,AD,Ø9,CØ,CD,3C
1Ø8Ø DATA Ø3,DØ,2Ø,C8,AD,ØA,CØ,CD
1Ø81 DATA 3D,Ø3,DØ,17,C8,AD,ØB,CØ
1Ø82 DATA CD,3E,Ø3,DØ,ØE,AD,ØC,CØ
1Ø83 DATA CD,3F,Ø3,DØ,Ø6,2Ø,CC,C2
1Ø84 DATA 4C,4B,CØ,98,48,68,4C,CA
1Ø85 DATA CØ,A9,2Ø,8D,ØØ,D4,8D,Ø1
1Ø86 DATA D4,A9,Ø9,8D,Ø5,D4,A9,ØF
1Ø87 DATA 8D,18,D4,6Ø,2Ø,A9,C2,A9
1Ø88 DATA 81,2Ø,DF,C2,A9,8Ø,2Ø,DF
1Ø89 DATA C2,4C,D9,C2,2Ø,A9,C2,A9
1Ø9Ø DATA 11,2Ø,DF,C2,A9,1Ø,2Ø,DF
1Ø91 DATA C2,A9,ØØ,8D,Ø4,D4,6Ø,8D
1Ø92 DATA Ø4,D4,A2,7Ø,AØ,ØØ,88,DØ
1Ø93 DATA FD,CA,DØ,FA,6Ø,END
```

END

```
5 TRAP 200
10 PRINT"[CLEAR]POKING -";
20 P=4864 :REM $1300  (END AT
   5545/$15A9)
30 READ A$:IF A$="END"THEN 110
80 PRINT"[HOME,RIGHT12]"P;
100 B=DEC(A$):POKE P,B:T=T+B:P=P+1
   :GOTO 30
110 IF T<>59382 THEN PRINT
   :PRINT"MISTAKE IN DATA --> CHECK
   DATA STATEMENTS":END
1000 DATA 4C,1E,13,4C,3A,13,00,00
1001 DATA 8E,00,F7,00,42,41,51,57
1002 DATA 0D,00,0D,43,08,14,0E,14
1003 DATA 16,14,26,14,33,14,A9,00
1004 DATA 8D,00,FF,AD,04,03,8D,12
1005 DATA 13,AD,05,03,8D,13,13,A2
1006 DATA 4A,A0,13,8E,04,03,8C,05
1007 DATA 03,60,AD,12,13,8D,04,03
1008 DATA AD,13,13,8D,05,03,60,6C
1009 DATA 12,13,A5,7F,D0,F9,AD,00
1010 DATA 02,20,5B,13,90,F1,A0,00
1011 DATA 4C,6F,14,C9,30,30,06,C9
1012 DATA 3A,10,02,38,60,18,60,C8
1013 DATA B1,3D,C9,20,D0,03,C8,D0
1014 DATA F7,B1,3D,60,18,C8,B1,3D
1015 DATA F0,35,C9,22,F0,F5,6D,06
1016 DATA 13,8D,06,13,AD,07,13,69
1017 DATA 00,8D,07,13,4C,75,13,18
1018 DATA 6D,08,13,8D,08,13,90,03
1019 DATA EE,09,13,EE,0C,13,60,18
1020 DATA 6D,0B,13,8D,0B,13,90,03
1021 DATA EE,0A,13,EE,0D,13,60,0A
1022 DATA A8,B9,14,13,85,FB,B9,15
1023 DATA 13,85,FC,A0,00,8C,00,FF
1024 DATA A9,12,20,D2,FF,B1,FB,F0
1025 DATA 06,20,D2,FF,C8,D0,F6,20
1026 DATA 79,15,20,A3,15,20,E4,FF
1027 DATA F0,FB,A0,1B,B9,EF,13,20
1028 DATA D2,FF,88,10,F7,68,68,A9
1029 DATA 00,8D,00,02,4C,B7,4D,91
1030 DATA 91,0D,20,20,20,20,20,20
1031 DATA 20,20,20,20,20,20,20,20
1032 DATA 20,20,20,20,20,20,91,0D
1033 DATA 51,55,4F,54,45,00,4B,45
1034 DATA 59,57,4F,52,44,00,23,20
1035 DATA 4F,46,20,43,48,41,52,41
1036 DATA 43,54,45,52,53,00,55,4E
1037 DATA 49,44,45,4E,54,49,46,49
1038 DATA 45,44,00,4E,4F,20,43,48
1039 DATA 45,43,4B,53,55,4D,00,C8
1040 DATA B1,3D,D0,FB,98,30,04,C9
1041 DATA 06,30,1E,88,88,88,88,88
1042 DATA B1,3D,C9,27,D0,13,A9,00
1043 DATA 91,3D,C8,A2,00,B1,3D,9D
1044 DATA 00,0B,C8,E8,E0,04,D0,F5
1045 DATA 60,4C,5C,15,4C,C5,14,A0
1046 DATA 09,A9,00,99,06,13,8D,00
1047 DATA 0B,88,10,F7,A9,80,85,FD
1048 DATA A0,00,20,3F,14,20,AE,14
1049 DATA 20,0D,43,84,FA,A0,FF,20
1050 DATA 67,13,F0,D8,24,FD,F0,06
1051 DATA 20,8F,13,4C,8F,14,C9,22
1052 DATA D0,06,20,74,13,4C,8F,14
1053 DATA 20,9F,13,4C,8F,14,A0,00
1054 DATA B9,00,02,20,5B,13,C8,90
1055 DATA 0A,18,6D,0A,13,8D,0A,13
1056 DATA 4C,B0,14,88,60,18,AD,0C
1057 DATA 13,69,41,8D,0C,13,38,AD
1058 DATA 0D,13,E9,19,90,06,8D,0D
1059 DATA 13,4C,CF,14,AD,0D,13,69
1060 DATA 41,8D,0D,13,AD,06,13,6D
1061 DATA 08,13,48,AD,07,13,6D,09
1062 DATA 13,8D,0F,13,68,6D,0B,13
1063 DATA 8D,0E,13,AD,0F,13,6D,0A
1064 DATA 13,8D,0F,13,38,E9,19,90
1065 DATA 06,8D,0F,13,4C,05,15,AD
1066 DATA 0F,13,69,41,8D,0F,13,AD
1067 DATA 0E,13,E9,19,90,06,8D,0E
1068 DATA 13,4C,1A,15,AD,0E,13,69
1069 DATA 41,8D,0E,13,A0,01,AD,0C
1070 DATA 13,CD,00,0B,D0,20,C8,AD
1071 DATA 0D,13,CD,01,0B,D0,17,C8
1072 DATA AD,0E,13,CD,02,0B,D0,0E
1073 DATA AD,0F,13,CD,03,0B,D0,06
1074 DATA 20,89,15,A4,FA,60,98,48
1075 DATA 68,4C,AF,13,A9,04,4C,AF
1076 DATA 13,A9,00,8D,00,FF,A9,20
1077 DATA 8D,00,D4,8D,01,D4,A9,09
1078 DATA 8D,05,D4,A9,0F,8D,18,D4
1079 DATA 60,20,61,15,A9,81,20,9C
1080 DATA 15,A9,80,20,9C,15,4C,96
1081 DATA 15,20,61,15,A9,11,20,9C
1082 DATA 15,A9,10,20,9C,15,A9,00
1083 DATA 8D,04,D4,60,8D,04,D4,A2
1084 DATA 70,A0,00,88,D0,FD,CA,D0
1085 DATA FA,60,END
```

END

## Technical Tips/Connecting Modems Directly

*Continued from pg. 81*

2. Most software lets you select half duplex or full duplex operation. In half duplex, what you type on one computer is displayed on both screens. In full duplex, what you type on one computer is displayed on the *other* computer's screen. If you get "double typing", switch it to full duplex operation.

3. If you seem to be communicating, but with garbled transmissions, double check the communications parameters referred to in Step 4 at the start of this article.

4. If a transferred file has its upper and lower case letters reversed, one of your computers is probably using PETASCII (Commodore's modified ASCII code), and one is using standard ASCII. Your communications software probably has a setting that will convert one to the other.

5. In data communications, it's common for the cursor to return to the beginning of a line without moving downward. If that happens, you need to send a line feed character whenever you send a RETURN. Most commercial software has settings that can do that automatically.

Well, readers, that's the story on Ma Sander. If you know your data communications, you know that an RS232 cable and direct-connect software will do her job just as well, and probably at a faster rate. But she does it at a *lot* lower cost and with a *lot* greater sense of accomplishment. C

## Tips & Tricks/Amiga

*Continued from page 16*

**On the TECHNICAL Side . . .** If you're the owner of an older Amiga 1000, (Pre-summer 1986) then you may be faced with a dilemma if you attempt to place more than one peripheral on your expansion bus. Many people have suggested ways to solve a problem that has been related to the PAL chips on the daughterboard inside the 1000. One of the leading answers was to order a set of replacement PALs from Commodore or some other supplier and exchange them for the existing PALs. This seemed to work fine, and a lot of PALs were sold and a lot of technicians got paid for the exchange work.

There's a simpler and less expensive way around this problem, however. It isn't for the weak of heart and requires good soldering skills. If you feel you can do it, remove the daughterboard from your 1000 (The small board attached upside-down on the motherboard—it's out of warranty now, anyway). You can fix the problem (which seems to be an electronically noisy solder job) by connecting any small (24 gauge or smaller) wire between all of the PAL chips at pin 10 and then continuing this wire to a ground point. I used wire wrap wire from Radio Shack, and I've had no problems since. If you have any doubts about doing this, *don't!* The cost at an authorized service center shouldn't be more than an hour of labor. If you feel confident, but are curious as to which pin is number 10, look at the top of the chip—count from the dent (or dot in some instances) in a counter-clockwise direction.

It seems that the problem is in a weak ground in the PAL circuitry. By connecting them all together, you strengthen this ground and reduce the amount of electronic noise. The same thing was happening when the technicians were resoldering your new PALs, the answer just wasn't obvious. The only way to know if this applies to you is to attempt to install more than one expansion device and see if you get a visit from the GURU!

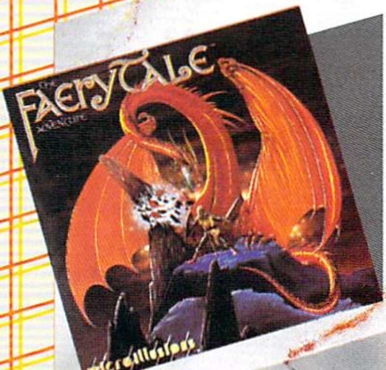
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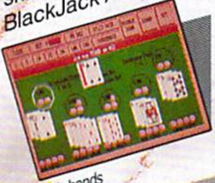

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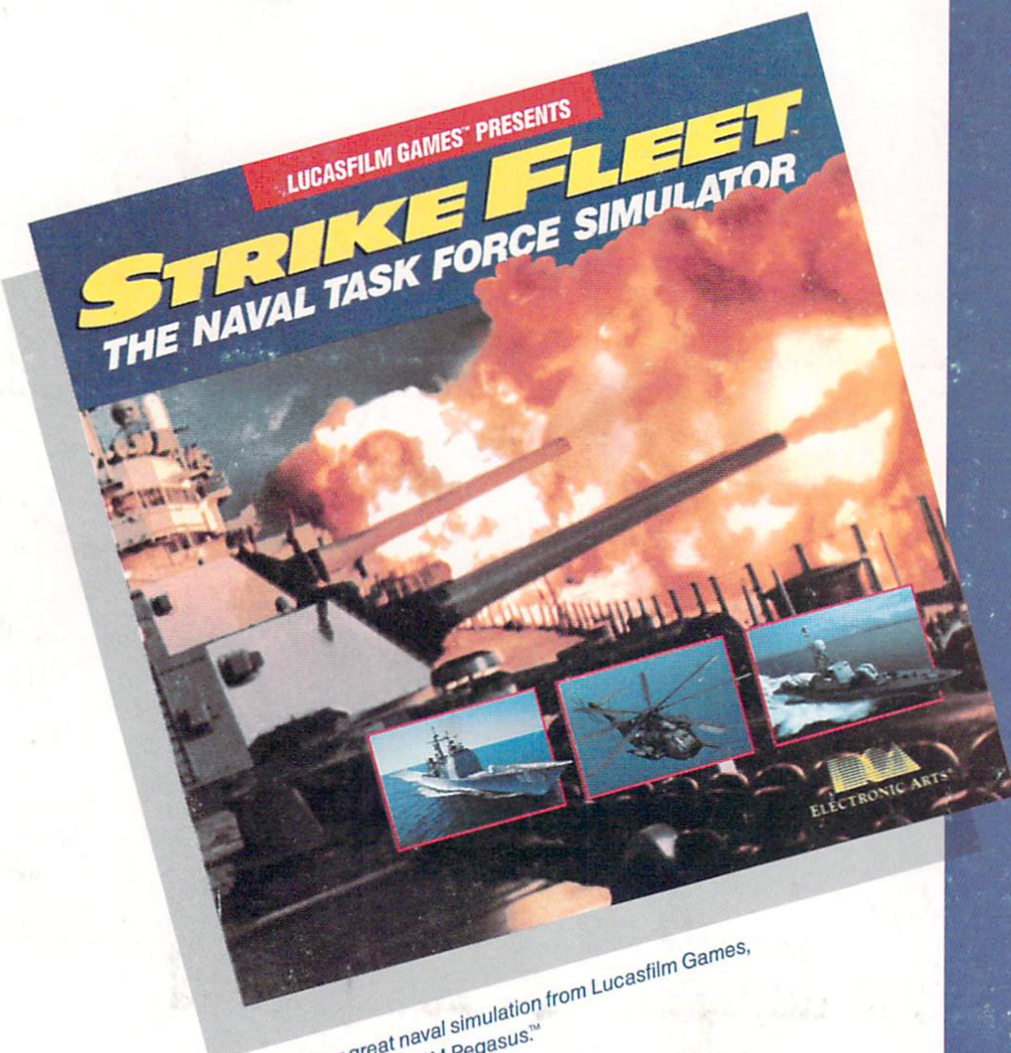
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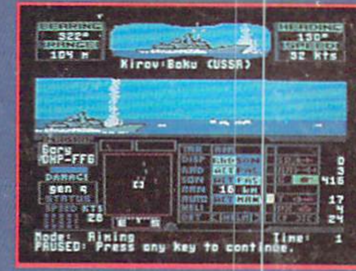
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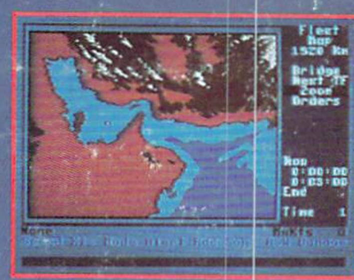





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